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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)
This is a final technical report for DARPA contract #N00014-78-C-0247 covering the period FY 1980-1981. The work completed extended and validated successfully the measures of the capacity of political systems and national capabilities from developing to developed countries. As in our previous work, the measures for developed countries were tested by monitoring their performance in international and military conflicts, and the measures were found valid. New measures of the capacity of political systems in peacetime (i.e. not under stress) were developed. These new measures were called indices of political costs. Such measures were

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validated by an extensive experiment exploring the effects of "political development" on vital rates of national populations. Moreover, preparatory work has been completed for further research to be done on the performance of the available measures as indicators of stability/instability of political systems. Some of the work in this phase can be considered a first exploration of how to go about pinning down a quantitative measure of the capability of political systems to expand their own capacity given development of the economic system. Moreover, preparations have been completed to test the relationship between popular support and the capacity of the political system. Finally, and most importantly, preparatory work has been done for the attempt to extend the measures of capacity of political systems to the communist nations of Eastern Europe and the USSR.

FINAL TECHNICAL REPORT:

A PROGRAM OF RESEARCH ON NATIONAL ESTIMATES

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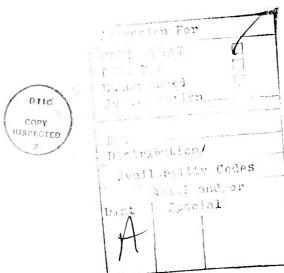Ann Arbor, Michigan

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SUMMARY

The work completed under this contract extended and validated successfully the measures of the capacity of political systems and national capabilities from developing to developed countries. As in our previous work, the measures for developed countries were tested by monitoring their performance in international and military conflicts, and the measures were found to be valid. New measures of the capacity of political systems in peacetime (i.e. not under stress) were developed. These new measures were called indices of political costs. Such measures were validated by an extensive experiment exploring the effects of "political development" on vital rates of national populations. Moreover, preparatory work has been completed for further research to be done on the performance of the available measures as indicators of stability/ instability of political systems. Some of the work in this phase can be considered a first exploration of how to go about pinning down a quantitative measure of the capability of political systems to expand their own capacity given development of the economic system. Moreover, preparations have been completed to test the relationship between popular support and the capacity of the political system. Finally, and most importantly, preparatory work has been done for the attempt to extend the measures of capacity of political systems to the communist nations of Eastern Europe and the USSR.

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This document is the final report on work done under contract #N00014-78-C-0247 for the period FY 1980 through 1981.

The goals under this contract were:

a) to explore whether measures of the effectiveness of political systems (developed by the National Estimates project) worked as well in conflict situations where developed countries were the combatants as such measures had performed for military conflicts where combatants were developing countries;

b) to test whether the measures of the effectiveness of political systems for developing and developed countries worked equally well for peacetime and for conflict situations;

c) to begin exploring whether the measures in question could be usefully employed to test for stability of political systems;

d) to <u>initiate</u> <u>preparatory</u> work essential if the political capacity measures developed for non communist political systems could be made to apply to communist countries;

e) to <u>initiate</u> <u>preparatory</u> work essential to establish the effect that the level and scope of popular support had on governments' capacity to execute decisions.

It should be clear from the above that work targets for goals from (a) through (e) were quite different. In goals (a) and (b) the solutions to the problems were completed.

1. Previous measures of political capacity of governments were adjusted to apply to political systems with developed economies and the performance of developed countries in military conflicts were used as tests of measures of the effectiveness of their political systems. This work is detailed in section I of this report.

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2. New measures were developed to monitor the performance of political systems in peacetime, and a major test of the performance of these measures was carried out. This work is detailed in section II of this report.

Work targets for tasks (c), (d) and (e) were essentially limited to extensive preparations for work to be done under future contracts. Because resources are no longer available the extension of the work has not begun. The preparatory work is discussed in section III of this report.

It should be noted that many of the findings in this report are on their way to publication. The work done on the stability of the political system has been published by Y. Cohen, B. Brown and A.F.K. Organski in the American Political Science Review of December 1981. (see Appendix 4) The full description of the new measures of political capacity developed for the purpose of monitoring the performance of political systems in peacetime, and a full description of the test to validate such models, is contained in a book length manuscript tentatively entitled Births, Deaths and Taxes: The Demographic and Political Transitions. This volume is now awaiting comments from colleagues in the field and final revision before being sent to a publisher (a copy of an early version of this manuscript has been submitted to Dr. J. Daly of DARPA). A very brief review of this material is also contained in a paper, "The Political Determinants of Population Dynamics," which has been submitted by J. Kugler et al. to an appropriate journal for publication. The test of political measures with conflict situations where the combatants are developed countries has been described in a manuscript of article length by J. Kugler and W. Domke and is being revised into its final form for publication.

SECTION I. COMPARING THE STRENGTH OF NATIONS

The work reported in this section is a direct continuation of tests done under two contracts (Technical Reports on DARPA contracts #N00014-76-C-0639 and #N00014-78-C-0247) which tested measures of political capacity and national capabilities, developed by the National Estimates project, in conflicts in the developing world. In the last two years we extended these measures to developed nations and have tested whether our measure would work in conflicts where developed nations are the combatants.

National capabilities depend indirectly on the size of populations, economic productivity, technological and military aid, and depend directly on how well these resources are used by the government. Past error in predicting winners and losers in total conflict are largely rooted in the inability to estimate political capacity of governments and to combine in an appropriate fashion this crucial element with socioeconomic indicators traditionally used to approximate the strength of nations.

It was evident that aggregate measures of national capabilities are not the only elements that determine the outcome of wars; the will to fight, the quality of leadership, the type of equipment or strategy employed, even luck are well documented elements in military victory (Aron, 1966; Esposito, 1959). Yet we believe that these differences can only determine outcomes when the capabilities of opponents are similar. Substantial evidence supporting this contention emerged in the analysis of conflicts since 1950. When political controls were incorporated in the evaluation of national capability, vast differences in military, demographic, and economic capabilities among contenders in the developing world disappeared (Organski and Kugler, 1978).

The purpose of this section is to determine whether the inclusion of the measure of political capacity we have devised and the aggregate measure

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of national capabilities that incorporates it can account systematically for the outcome of major European conflicts in the twentieth century. The failure to forsee accurately the likely outcome of conflicts no doubt affects decisions to initiate hostilities. For example, despite the wise evaluations of Admiral Yamamoto, most Japanese policy makers failed to appreciate the military potential and the determination of the United States, and suffered a devastating defeat at its hands (Wohlstetter, 1962). This fate is no different from that which befell American policy makers who relied on military and socio-economic indicators in Vietnam. We do not imply that decision makers choose to initiate wars solely because of relative superiority in national capabilities, but there is substantial evidence that national strength estimates are an essential element in any contemplation of probability of success in war (Bueno de Mesquita, 1981). One wonders if the same choices would have been made had more accurate forecasts of the likely outcome been available to decision makers of nations on the losing side of conflicts.

A second important reason for the experiments described below is to test the validity and responsiveness of the measure of capacity of the political system. If we succeed in accounting for total conflicts in Europe, we also demonstrate that a general, consistent, and effective measure of political capacity has been developed that has potential applications way beyond the confines of war analysis. We choose conflicts in Europe because differences in the political performance of governments in developed nations are much less strong than those found among developing nations. Thus, the measure of political performance must be substantially more subtle to distinguish between, say, the political effectiveness of Germany and Britain during World War II, and the political effectiveness of Egypt and Israel in the 1970s.

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Finally, this study extends the evaluation over time of national strength from twenty to fifty years. By moving away from a cross-national structure and expanding the number and type of conflicts considered, we dramatically diminish the likelihood that the results are determined by peculiar and short-lived political conditions in the international arena. Perhaps more importantly, unlike the wars in the developing world, which receive intense attention while in progress, but are soon forgotten once concluded, the massive European conflicts considered here are the most intense, severe, and devastating events that have reshaped the international arena, and are studied with as much interest today as the day they were waged. Because of this interest, the evaluations presented here can be contrasted with effective theoretical and empirical evaluations not readily available for the less dramatic confrontations in the developing world.

ANALYTICAL SAMPLE

To identify the European conflicts and the participants in such confrontations, we use definitions already provided by Singer and Small (1978). Because of the massive difference in overall capabilities between the few major powers and the large number of small nations, we restrict this study only to the main actors: United States, Russia/USSR, United Kingdom, France, Germany, Italy, Japan, and Austria-Hungary.

Several controls are introduced to assure that the sample is adequate to test the central hypothesis that national strength can forecast war outcomes. First, we sought to ensure that opponents tried wholeheartedly to win the war and committed all available resources toward this goal. Major powers are frequently involved in limited conflicts where only a small fraction of their capabilities are deployed. Thus, we were particularly careful in avoiding conflicts where political elites could accept defeat without total commitment, and could choose a political settlement in lieu of

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an all out attempt to achieve victory. Total commitment to a conflict is indicated when military defeat will result in military occupation or outright annexation of core territory. Note that, since the French revolution, no major power has voluntarily acceded to loss of territory after conflict. The peaceful territorial adjustments are rare (e.g. Norway and Sweden), and seldom endure.

One would think that the outcome of total conflict should not be a controversial issue, but it is. Many Germans, for example, felt with or without good reason that their armies were never defeated in World War I. The unconditional surrender, the imposed heavy reparations, and the occupation of territory was perceived as treason by the civilian elite, not as a result of military defeat. We cannot and do not enter such debate here. When a nation accepts military occupation and loses part of its territory at the end of war, the outcome is a defeat. Lack of change indicates a draw. Territorial annexation or occupation indicates victory. We are taxing severely the single indicator of territorial exchange, but again, this simple criterion is an effective determinant of outcomes in total wars.

The third objective is to identify within the limited sample of major wars in Europe those phases which have clear cut outcomes. We determine the end of a war phase when a stalemate is achieved or a major actor is eliminated. A partial loss of territory or the defeat of a minor participant are disregarded. World War I, for example, is waged entirely in French territory, but France is never eliminated as a major contender. On the other hand, the early defeat of France in World War II signals the end of a phase. To identify the phases in each conflict considered, we use the excellent historical Atlas compiled at West Point which delineates in detail the major military campaigns and associates them with decisive, even though partial, outcomes (Esposito, 1959).

The final distinction drawn is between actors who participate fully and their partners who provide aid. Some counterintuitive results are easily obtained if one considers every participant as fully committed. In World War II, for example, Germany fought France and Britain on the continent and routed their combined armies in a matter of weeks; but when Nazi efforts turned to Britain alone, they were unable to break through British air defenses which would permit an invasion. Paradoxically, Germany succeeded against the combined might of France and Britain, but failed against Britain alone! To avoid such results we measure the relative involvement of contenders by the degree of threat that the war poses directly to their territory. Main actors are those directly threatened with invasion and occupation if the ongoing battle is lost. Partners are contenders who wage war, but whose territorial integrity is not directly affected by the outcome of the current military campaign. By our logic, during 1940 Britain is a supporting actor who commits part of the available resources on the Continent to aid France; but during the Battle of Britain, England is a main participant waging war without constraints in order to preserve national integrity.

Let us now provide a summary table that incorporates the distinctions outlined for the major European conflicts in the twentieth century:

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Table I

Phases of Major Conflicts in Europe 1900-1960

WAR	YEAR	ACTORS	PARTNERS	VICTOR
Russo-Japanese	1904-5	Russia Japan		Japan
World War I				
Western Front, Phase I	1914-16	Germany France	Britain	Draw
Eastern Front	1914-17a	Germany Russia Austria-Hungary		Germany
Western Front, Phase II	1917b-18	Germany France Italy Austria-Hungary	Britain USA	Allies
World War II				
Western Front, Phase I	1940	Germany France Italy	Britain	Germany
Western Front, Phase II	1940	Germany Britain		Draw
Eastern Front	1941-43	Germany USSR		Draw
Combined European Front	1943-45	Germany Italy Britain USSR	USA	Allies
Pacific Front	1941-45	USA Japan		USA

The sample we have to work with is meager. Despite all attempts to include as many cases as possible and distinguish between separate phases of complex conflicts, only nine outcomes can be evaluated. We are also aware that some gross oversimplifications have been introduced. The contributions made by smaller nations cannot fairly be considered unimportant events. For example, Belgium in World War I delayed the invasion of France for precious weeks, or that the conquest of Yugoslavia in World War II forced Germany to postpone the thrust into Russia. Under some conditions, then, the actions of smaller nations may have affected the eventual outcome. The reason for

excluding them, though, is that while smaller nations may well have affected the course of major European wars, they do not determine the eventual outcome.

Before turning to the construction of aggregate national capability estimates, let us devote some space to detail what is meant by the key component of political capacity and how this indicator is empirically evaluated.

POLITICAL CAPACITY

Political capacity is defined as the ability of a government to carry out tasks imposed on it by the political elites, by other important national actors, and by the pressures of the international environment. We suggest, and have documented, that highly capable systems need not be free, democratic, participatory, or endowed with any of the characteristics attributed to, or expected from, governments that are developed in the normative sense. While one may well argue that a government that prevents participation, coerces its population into submission, or fails to allow political representation is not politically capable, such normative considerations are not incorporated in this analysis. The focus is instead on political performance conceived as the ability of a national elite to govern and to generate human and material resources required to achieve established goals (Organski, et al., 1982, 1980).

Empirically, political capacity is measured by the relative ability of a government to extract reources from the pool produced by society, and allocate them for stated ends. Extraction of resources is a critical element in governmental performance because few operations depend so heavily on popular support or fear of punishment, few affect so directly the lives of every individual in society, and few are avoided so skillfully or levied so vigorously. The reason is that without a steady form of revenues, there

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is no national unity, no control, no organized society, in sum, no government. The insight that extraction, in its many forms, links masses directly with the political elites is not new (Ardant, 1975: 220). What is new as a result of this work is the ability to approximate empirically political capacity from aggregate levels of extraction. But one cannot do so directly. For rich countries extract more resources than poor ones, societies with large social programs more than those where such services are performed by the private sector, and nations with vast mineral resources more than those less richly endowed. Thus, political capacity is a ratio between the governmental extraction based on economic constraints and the actual extraction achieved:

$$\text{POLITICAL CAPACITY} = \frac{\text{ACTUAL EXTRACTION}}{\text{PREDICTED EXTRACTION}}$$

A crucial step in this calculation is the construction of an econometric model that controls the salient economic determinants of fiscal extraction and permits effective discrimination between governments that achieve very different levels of extraction with similar access to economic resources. A government with a ratio of actual extraction to economically predicted extraction larger than one, is considered relatively more effective than a government which achieves a score of one, which reflects average performance, and in turn this government is more effective than that which achieves scores ranging between zero and one. This indirect and relative measure of political capacity is valid only if the predicted values incorporate the most salient economic factors and if the actual extraction is sufficiently encompassing to reflect all sources of government revenues.

The elements of the political capacity ratio are easier to specify theoretically than to approximate empirically, and in the translation from theory to practice we made concessions to empirical reality that require some discussion. Actual extraction incorporates the revenues collected by

the central governments in direct taxes, indirect taxes, profits from governmental enterprises, and governmental borrowing, but excludes contributions made to autonomous social security funds. The objective is to identify elements that give direct indication of governmental extraction over which discretion can be exercised. Social security contributions are excluded because here the government simply acts as a broker taking in the resources from one group of the population and returning it to another. Further, social security funds are usually subsidized and provide little latitude for reallocation of resources to alternate goals. On the other hand, direct taxes and profits from government monopolies are the key ongoing sources of government revenue. These revenues can be avoided by smuggling, misrepresentation of production, or by hiding income and profits. Such evasions indicate an unwillingness of the population, for the sake of personal profit, to help shoulder the collective burden, and shows the inability of a government to force or persuade compliance with established goals.

A special problem arises with respect to governmental borrowing. The ability to attract lenders is not the same as the capacity to directly or indirectly extract resources from the population. Borrowing may be pursued as an avenue to make profit rather than to grant reources to the government. Although taxation and borrowing are different sources of revenue, they are considered equivalent sources of extraction under the stress of war because great pressure can be brought to bear on wage earners by the government to purchase bonds, and because extensive buying shows strong support for the war effort. The rationale for this decision is well argued by Pigou (1941: 74-75):

> When a given sum of money is raised by the government from anybody, and he does not shift the task of shouldering it on to somebody else, the choice that he makes between these various sources is not determined by the form in which the levy is made upon him. It is open to him to meet the claims of taxation out of capital and those of loans out of income. The size of the contribution he is called

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upon to make is a much more important factor than the form of it in determining the sources from which he elects to provide it.

We also have some empirical evidence that during war, some nations borrow money more successfully than others. Borrowing is, for example, a major source of revenue for Germany and France in World War I, but the less effective governments of Austria-Hungary and Italy are simply not able to persuade the population to buy government bonds despite nominally advantageous terms (Bogart, 1920). Despite these caveats, borrowing and taxation are not identical. We chose to add only increases in debt to the actual level of extraction because the government is successfully using alternate means to increase resources available to them; but when the repayment is larger than the amount extracted, we do not subtract negative borrowing since the government still has to extract resources for repayment, and must therefore be politically effective.

Let us now turn to the second component in the political capacity ratio. Predicted extraction is the element that reflects the likely levels of revenue nations can achieve given economic factors. The objective is to determine how much revenue is generated strictly because of economic factors in order to distinguish this portion from that generated by effective political structures. As noted repeatedly in this and previous reports, without economic controls, extraction levels have little to say about politics. Petroleum producing nations have astonishingly high governmental revenues from royalties received in the sale of crude oil. It would be a major error though, to give high political marks to the governments of Saudi Arabia, Libya, Venezuela, or Iran simply because they are able to tap resources to which their own populations contribute little.

Because of the complexity and differences in fiscal structures, one is tempted to incorporate additional variables and new controls in every new analysis of predicted extraction (Bahl, 1971; Tait, 1979; Kugler, 1982). This temptation is not surprising given the limited work available on the

flow and structure of public funding, but we attempt to avoid extensive modifications to maintain continuity with previous findings.

A crucial assumption maintained is that nations extract to the limit of their capacity because the demands for resources surpasses the level of revenues gathered. This constraint removes the need to control for differences in expenditure patterns. Few would question this assumption in most of the developing world; yet retaining it for countries that are far more advanced requires clarification. Recall that revenues for social security are removed from actual extraction at the outset to control for gross differences in social programs. But government expenditure for education, welfare, and health programs today remain. We retain this simplification because, while many of the European economies considered were more productive and more complex than most of those in the developing world today, until the end of World War II, they did not exercise the pervasive presence caused by social expenditures that today dramatically differentiates fiscal structures in the developed world. Further, the assumption that revenue levels are constrained only by inputs is made because we are testing performance of nations under the pressure of conflict when governments attempt as hard as possible to extract the maximum from the population for the war effort, and have reallocated resources to the war effort wherever feasible. A final, less important reason is the awesome difficulty in obtaining consistent data. The actual extraction is estimated using annual revenue data collected for thirteen governments including Austria-Hungary, Czechoslovakia, Finland, France, Germany, Greece, Japan, The Netherlands, Poland, Russia/USSR, Sweden, United Kingdom, and the United States (see Appendix I for sources). We found it impossible at this time to extend this collection from the relatively well-established, but still quite distinct reports in fiscal collection to the more complex and less effectively standardized reports of fiscal expenditures.

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The econometric model previously used to estimate predicted extraction in third world countries included controls for the share of productivity from agriculture, mining, and exports, in addition to a linear time trend component (Organski and Kugler, 1980). The choice was made after considerable evaluation of the still disputed fiscal literature on this subject (Chelliah, 1971; Tait, 1979). We retain the time control to eliminate the trend towards increasing allocation of revenues and expenditures through the public sector. For the economies examined here, adjustments were necessary in the remaining elements. Mining, for example, is not a significant determinant of governmental extraction. Whereas in developing countries, economic productivity is often concentrated in a few extractive industries, all the economies considered here have small and stable mining sectors that do not discriminate between levels of extractive capacity. Further, national output per capita is used rather than agricultural production, since in more advanced countries this substitute measures more adequately the economic development of the overall economy.

Other departures from earlier efforts are more troublesome. Exports are used because greater trade yields more custom duties, and the transit of goods through ports permits easy access to government tax officials. This relationship should be strong and significant for the sample of countries considered here, yet it was not. The reasons are perhaps not too difficult to understand: the years 1900-1960 include two world wars and the great depression that severely affects trade. Indeed, economic historians refer to the 1914-1945 period as one great trade depression (Kindleberger, 1973). This leaves only the years before World War I and after World War II to reconstruct the normal effects of trade activity. When the short period is considered, trade controls are effective, but when exports are included for the whole time span, the results are weak and are the exact opposite from those theoretically expected. We had no choice but to eliminate this

control from the equation.

Finally, central government revenues, rather than the encompassing general government revenues, are available for the period considered. However, many of the countries included possess fairly active regional and local governments which also extract resources. Some measure of the share of governmental extraction gathered by these sources must be added; after all, central governments can rely on local authorities to finance public services, and countries that adopt such procedures should not be penalized for extracting fewer resources. This item is particularly important for the federal governments such as Germany where, prior to 1918, central authorities were restricted to collecting indirect taxes while local authorities controlled direct taxation. To adjust these differences, central government revenue as a percent of total public revenue is included as an added control in the model predicting extraction.

The equation used to predict the level of extraction under given economic conditions produces the following results:

ACTUAL EXTRACTION = 2.40 + .036 TIME + .031 CENTRAL GOV. + .001 GNP PER CAPITA

$R = .24$ N=536   Significance level: .0001

where:

ACTUAL EXTRACTION = Percent Adjusted Tax over GNP

CENTRAL GOV. = Percent Central Gov. Revenue of Total Gov. Revenue

GNP PER CAPITA = Constant GNP per Capita in 1960 US dollars

TIME = 0,1,2,..., from 1900 through 1960

All the coefficients are significant and affect extraction levels in the direction theoretically anticipated. The economic factors explain about twenty five percent of the total variation in extraction, clearly indicating that the excluded predictors are powerful. Part of this variation is simply due to the uneven economic performance caused by the world wars and the

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great depression; but remaining dramatic differences, we postulate, reflect the levels of political capacity of governments.

Since a main contention of this paper is that we can distinguish strong from weak political systems, it is perhaps useful to consider the levels of political capacity achieved by main contenders in periods of war stress. The tabular presentation will permit the reader to explore the patterns of mobilization of the main contenders directly, before they are obscured in the aggregation of national capability that includes other socio-economic variables.

Table II

Political Capacity Extracted in War by Major Contenders

WAR	YEAR	JAPAN	RUSSIA	GERMANY	UK	FRANCE	ITALY	USA
Russo-	1904	2.36	.83					
Japanese	1905	4.40	1.06					
WWI	1913	(.90)	.61	.55	.50	.68	.65	.31
	1914	(.87)	.96	2.13	1.95	1.30	.67	.31
	1915	(.84)	2.13	5.84	3.10	2.00	.71	.35
	1916	(.73)	1.61	5.24	4.89	3.26	1.41	.95
	1917	(.92)	*	5.92	3.86	2.06	1.28	3.64
	1918	(.88)	*	4.69	3.16	3.15	1.51	3.14
WWII	1939	1.98	1.46	1.55	1.43	1.18	.73	.59
	1940	2.18	1.33	2.05	2.30	2.00	1.15	.82
	1941	2.51	1.55	2.43	2.31	*	.90	1.53
	1942	2.95	1.82	2.58	2.58	*	1.31	2.60
	1943	4.09	1.62	2.61	2.38	*	.84	2.51
	1944	5.43	1.69	2.47	2.46	*	.27	2.11
	1945	n.a.	1.85	n.a.	2.34	*	.30	1.05

( ) - not directly involved in war, but given for purposes of comparison
n.a.- not ascertained
 * - nation surrenders

The levels of political capacity achieved by major powers during the war periods is a telling display of governmental performance. First, somewhat counterintuitively we find that the levels of political extraction achieved by less economically developed nations are, in general, relatively higher than those extracted by the richer, economically more advanced countries. Note that Germany, the United States, France, Italy, and even Russia for one year, perform more effectively in World War I than in World War II, and that Japan, the least economically advanced nation of the group in World War II, achieves the highest level of political performance.

Such results do not mean that as a nation becomes richer, the government extracts less from the population; rather, they indicate that real levels of extraction are constrained at high economic levels. In advanced, relatively productive societies, the absolute levels of extraction are much higher than those in less developed countries, but improving extraction once high levels are achieved is increasingly difficult. The reason for the high marginal costs of adding new resources once absolute extraction is high is that even though a large pool is available for mobilization, the political flexibility of the government to increase extraction is diminished. Commitments made to the maintenance of social services, transportation, health, or education cannot be simply abandoned without losing essential support from the population which is concurrently expected to die in defense of the country.

A second interesting pattern emerges. The political capacity of nations which lose wars seems to peak just before defeat becomes inevitable, while that of winners appears to be maximized earlier, when the outcome is still in doubt. Germany in World War I, and France, Italy, and Germany in World War II, and Russia in the Russo-Japanese war maximize their efforts in the last two years of the war. Only Russia in World War I departs from this pattern and achieves maximum extraction in 1915. Victorious nations achieve maximum performance early in the war effort. In World War II, the Soviet Union, England, and the US

achieve maximum effort in 1942, and the USSR again matches this performance in 1945. In World War 1, France and England perform best in 1916, and the United States in 1917, its first year in the war. Japan in the Russo-Japanese war is the sole exception. The fortunes of war may have a detectable effect on political capacity: as the likelihood of defeat rises, political elites increase their effort in hopes of altering the outcome, while as the likelihood of success increases, the political effort decreases in expectation of victory. Implicitly, such changes indicate variations caused by factors such as commitment, will to fight, or nationalism that are not directly included.

NATIONAL CAPABILITIES

To approximate the overall stength of nations we propose a simple and parsimonious combination of two large aggregates:

NATIONAL CAPABILITIES = INTERNAL CAPABILITIES + EXTERNAL CAPABILITIES

The reasoning behind this formulation is quite simple. In the waging of wars, particularly wars where the continuity of the state is at stake, resources available to the government will come from two sources: those directly extracted from the population and those provided by the assistance and collaboration of allies. We postulated that nations considered here fight to avoid defeat and occupation, utilizing all the resources they can muster. But the partners of nations threatened by occupation need not allocate all the resources availble to them. Rather, the contribution of allies will depend in large measure on how they calculate probability of success and evaluate the eventual danger to their own nation. Each of these two components, then, is operationalized separately in the aggregate of national capabilities as follows:

INTERNAL CAPABILITIES = POPULATION X PRODUCTIVITY X POLITICAL CAPACITY

EXTERNAL CAPABILITY = PARTNER'S AID X POLITICAL CAPACITY OF RECIPIENT

The demographic and economic dimension of the internal component is measured by gross output. A variety of alternate indicators can be used to approximate the socio-economic base that enter in any calculation of national capabilities. One might select energy consumption, favored due to its relative measurement simplicity and temporal accessibility (Heiss, Morgenstern, and Knorr, 1973); or one can use the combination of objective aspects of national strength which usually incorporates industrial, demographic, and military dimensions aggregated into a standard index, and can be further adjusted when wars are waged across long distances, or can even incorporate nuclear considerations (Singer, Bremer, and Stuckey, 1972; Bremer, 1980; Singer, et al., 1982; Boulding, 1960; Bueno de Mesquita, 1981; Doran and Parsons, 1980).

The reasons for retaining gross output as the socio-economic base for the internal component are both theoretical and empirical. First, gross output is strongly and consistently related to energy consumption and national capability measures integrating military, economic, and demographic dimensions (Kugler, 1973; Heiss, Morgenstern, and Knorr, 1973). Altering the socio-economic base will not affect the overall outcomes. More importantly, we are further persuaded by the theoretical argument, advanced by A.F.K. Organski (1968), that GNP is a parsimonious indicator of socio-economic capacity because it is the national population which can work, fight, and raise productivity that provides the base of national capabilities. Moreover, GNP is an effective indicator of overall productivity which is not directly affected by shifts in production from one purpose to another during wars. (Hitch and McKean, 1967). Unlike military indicators, gross product does not respond directly to war pressures;

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rather, it consistently monitors the aggregate productivity of nations in peace and war.

The socio-economic dimension of the external component is conceptually simple but rather difficult to estimate empirically. The overall value of external aid is reflected by the direct economic and military contribution added to the war effort. For allies, it is no longer reasonable to assume that all available resources are used for the war since these indirectly involved parties make contributions that vary from minimal to all-out support. For example, in World War 1, Japan declared war on Germany in 1914, but made only a nominal contribution given her overall potential; while in World War Il, the United States officially entered that conflict in late 1941, but made substantial economic contributions long before the official declaration of hostilities. We suggest that the overall value of aid can be approximated by the direct military contribution, and that such contributions reflect the degree of threat perceived by the supporting partner.

To approximate the actual aid provided by allies, we estimate the number of deployed infantry and armor divisions committed to the war zone as a proportion of the total available to the provider of aid. This indicator is a telling measure of commitment because direct support can be distinguished from potential contributions. Klaus Knorr (1970) has pointed out the importance of distinguishing between actual and potential strength, but his insight is even more telling in the case of alliances. Recall that World War II started when England declared war on Germany following the invasion of Poland; yet no resources were allocated by the United Kingdom to that effort, nor did England declare war on Russia, which occupied the eastern portion of Poland. Thus, to gauge the contribution of allies to the war effort, we distinguish verbal from actual commitment by measuring the resources provided to the war zone.

The index of military allocations is also used to distinguish between levels of commitment that a single actor makes to two distinct fronts. In both World Wars I and II, Germany allocated resources to the Eastern and Western Fronts where she faced loosely integrated fighting forces. It is inappropriate to apply the total capabilities of the country fighting on two fronts to each of the widely separated battlefields, nor is it appropriate to add the contribution of all forces when distinct phases are fcught on separate fronts. The indicator of proportional commitment of military resources is used to approximate the actual level of involvement that takes place. The table that follows summarizes the estimates of military involvement:

Table III

Percent Distribution of Aid and Effort

YEAR	GERMANY		AUSTRIA-HUNGARY		UK	USA	
	West	East	West	East		Europe	Pacific
WWI							
1914	86	14	0	100	50		–
1915	70	30	50	50	75		–
1916	70	30	50	50	75		–
1917a	70	30	50	50	75	25	–
1917b	100	0	100	0	75	25	–
1918	100	0	100	0	75	50	
WWII			ITALY				
1940a	100	0	100	0	40		
1940b	100	0	100	0	100		
19.1*	25	75	70	30	100		
1942	25	75	70	30	100	52	48
1943	22	78	70	30	100	60	40
1944	34	66	–	–	100	69	31
1945	35	65	–	–	100	68	32

* After June 1941 when Germany invades Russia

The evaluations of proportional effort were compiled by painstakingly summarizing the levels of military deployment made by each actor on active fronts. We chose to concentrate on army deployment, including infantry,

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mechanized, and cavalry divisions when applicable, because these were the main elements with which both wars considered were fought. The estimates for Germany, England, and the United States are most reliable because of extensive and detailed documentation available. Here, the invaluable help of John Mearsheimer was critical. His detailed knowledge of the military literature helped guide us through the morass of frequently contradictory data available on this subject. Estimates for Austria-Hungary and Italy, the weakest of the main powers, are based on less adequate information. The sources and some details on how these judgements were reached are summarized in Appendix II.

The estimate of partners' aid and the distribution of resources on two fronts is obtained by multiplying the proportion of military effort by the total output of the contributor. Thus, aid is the proportion of total output compatible with the military deployment, and the relative effort on a given front is the proportion of total output reflected by military involvement. By construction, the figures for aid and front commitment are directly compatible with total output used in the calculation of the internal component.

The final step in the computation of national capabilities introduces the political capacity weights. Internal capacity is calculated by multiplying the socio-economic capacity of main actors by their level of political capacity. In the calculation of the external component, the aid of partners is weighted by the political capacity of the recipient of aid. The reason for this decision is that the political performance of the main actor determines to a large degree how effectively the troops and aid of allies will be used. For example, British soldiers in France fought under the unified command of the French general staff during World War I, and relied on the French communications, transportation, and supply systems. We reasoned that material aid and soldiers from allied countries would be only

as effective as the conditions provided by the host country permitted them to be.

Having constructed the measure of national capabilities, it is now possible to turn finally to the central objective of this study. Let us operationally restate the main hypothesis:

1. The victor in a total conflict must possess a pool of national capabilities superior to those of the loser. This superiority must exist before the outcome is decided.

2. When capabilities available to opposing sides are similar, the outcome of the war should be a draw.

If these simple conditions are not met, the national capability measures and, of course, the political capacity indicator proposed here are not valid.

Let us turn to the findings.

RESULTS

In the presentation of the findings we consider chronologically each of the major conflicts and phases outlined at the outset. In the tables which follow, national capability estimates are compared with equivalent results produced by using total output alone. To make this comparison as realistic as possible and highlight the differences that political factors produce in the evaluation of national capabilities, we weight GNP with the same controls for aid and for two front wars that are used in the national capability estimates.

The first major power conflict in the twentieth century provides a very simple and interesting test of national strength. In February 1904, hostilities break out between Japan and Russia. Few predicted that Japan, a nation that produced roughly a quarter of the output of Russia, had a smaller population base, and whose major military force was dwarfed by that of the opponent, could challenge a major European power. Yet we know that Japan did so successfully. Consider the evidence:

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Table IV

Russo-Japanese War: 1904-1905

| YEAR | | JAPAN | | RUSSIA | |
	GNP	National Cap.	National Cap.	GNP
1903	10.9	9.2	24.7	37.3
1904	12.0	28.3	33.6	40.4
1905	11.3	49.8	38.5	36.3

In the Russo-Japanese War, the national capabilities of the contenders are identical to their internal capacity; no allies are involved. Note that Japan is able to extract more than enough resources from its population to make up for the lack of the vast socio-economic base required to confront Russia. In 1905, the last year of the War, despite a GNP three times smaller than that of Russia, Japan's national strength is almost thirty percent larger. Thus, with the political controls, national capabilities correctly account for the outcome of this conflict.

The second major conflict considered is World War I. It is difficult to document the performance of each actor in this conflict because of the complicated groupings of alliances during the phases of this major confrontation. It seems appropriate, therefore, to consider individual strength before examining the national capability of alliances. Consider the following table:

Table V

World War I: Major Actors, 1913-1918

YEAR	GNP	INTERNAL CAP.	GNP	INTERNAL CAP.	GNP	INTERNAL CAP.
	Germany		France		UK	
1913	52.9	29.1	26.6	18.2	46.5	23.4
1914	50.1	107.0	25.6	33.2	47.0	91.6
1915	45.2	268.0	23.6	47.0	52.2	161.9
1916	44.6	233.8	22.5	71.2	52.5	251.7
1917	43.6	258.5	22.0	45.4	53.5	206.5
1918	41.5	194.7	20.7	65.7	52.6	166.0
	Russia		USA		Italy	
1913	55.1	33.5	135.7	42.5	16.1	10.5
1914	51.0	48.9	129.7	39.7	15.9	10.6
1915	47.1	100.1	128.6	44.7	17.8	12.7
1916	43.0	69.2	138.7	131.4	19.7	27.8
1917	39.1	(35.2)	139.7	466.9	20.3	26.0
1918	–	–	156.8	492.7	20.5	31.8
	Austria-Hungary					
1914	26.7	30.8				

This table may be useful to readers who wish to compare the strength of individual contenders before and after the political adjustments are made, or who would prefer to vary the estimates of aid or effort on separate fronts. From our perspective, several interesting observations can be drawn. Germany is the strongest European contender of the war; England manages to overtake her only in 1916, but again falls behind when the deciding thrust is made in the Western Front in 1917 and 1918. France maintains a rather constant rise in the level of National Strength during the first three years of the war but her capabilities drop precipitously during 1917 when military strikes take a heavy toll. The performance of Russia reflects the political difficulties that the Romanov dynasty had in maintaining a large war effort. Reasonably reliable data is available only through 1916, but it is clear that the large socio-economic base of Russia is dramatically undermined by the inability of the government to increase extractive capacity. Italy enters the war in 1915 and manages to maintain a

moderate political effort. Data for Austria-Hungary is very tentative and incomp   performance of the dual Empire cannot be reconstructed, but parti   e leads us to the conclusion that her performance was no better in the later years than in 1914; we use this estimate throughout the war period. Finally, the entry of the United States in 1917 adds an overwhelming capability to the Allies that more than compensates for the loss of Russia.

The central point established by the preceding table is that political capacity affects dramatically the estimates of national capabilities, and, in addition, seems to provide a reasonably effective overview of the progress of each contender.

Let us now turn to the evaluation of war outcomes. In Table VI we have displayed the three main phases of World War I and have broken down the relative contributions of each of the main contenders involved. Consider the evidence:

Table VI

Strength of Coalitions in World War I

YEAR	RUSSIA	FRANCE	UK	ITALY	USA	GNP	CAP.	CAP.	GNP	GERMANY	A-H
		Western Allies							Central Powers		
		Western Front – Phase I									
1914	–	33.2	30.6	–	–	49.1	63.8	92.0	43.1	92.0	–
1915	–	47.0	78.3	12.7	–	80.6	138.0	202.6	45.0	187.6	15.0
1916	–	71.2	128.4	27.8	--	81.6	227.4	178.7	44.6	163.7	15.0
1917a	–	45.4	82.7	26.0	–	82.4	154.1	196.0	43.9	181.0	15.0
		Eastern Front									
1914	48.9	–	–	–	–	51.0	48.9	45.8	33.7	15.0	30.8
1915	100.1	–	–	–	–	47.1	100.1	95.4	27.0	80.4	15.0
1916	69.2	–	–	--	–	43.0	69.2	85.1	26.8	70.1	15.0
1917a	35.2*	–	–	–	–	39.1	35.2	92.6	26.5	77.6	15.0
		Western Front – Phase II									
1917b	–	45.4	82.7	26.0	71.9	117.3	226.0	288.5	70.3	258.5	30.0
1918	–	65.7	124.7	31.8	247.0	159.1	469.2	224.7	68.2	194.7	30.0

* – rough estimate

The first phase of World War I is waged on the Western Front. The bulk of German armies are deployed against France where the main thrust of the early invasion is concentrated. By our calculation Germany has an edge during 1914, and improves slightly on this advantage in 1915; in 1916 the movement of troops to the Eastern Front places Germany at a slight disadvantage, but in early 1917, before the entry of the United States into the war, the Central Powers again hold an advantage over the Western Allies.

The proportional advantage of the Central Powers in 1914 and in 1915 is slightly over thirty percent of total capabilities. This edge is congruent with reality: France almost collapsed in 1914 before trench warfare slowed down the advantage of the attackers, and without the shift to the Eastern Front and the essential intervention of the United States, the victor in World War I would most likely have been Germany.

Contrast these evaluations with the picture provided by GNP. In every year during Phase I, the Western Allies are superior to the Central Powers, and most importantly, that advantage grows dramatically over time to a two to one ratio <u>before</u> the entry of the United States. In effect, the predicted outcome is exactly opposite to the one made with national capabilities. The historical record, we believe, supports our contention.

The second phase of World War I is even more interesting. Here, the German and Austro-Hungarian coalition is pitted against Russia. National capabilities are about equal in 1914 and 1915, but in 1916 the tide turns sharply in favor of the Central Powers who by 1917 hold a preponderant three to one advantage. This evaluation reflects rather accurately the results on the battlefield. Again, GNP comparisons are far off the mark: Russia holds a substantial, although proportionally declining advantage during every year of the war. Using GNP, one would expect Russia to emerge victorious, or at least achieve a draw in the conflict. The historical record is again congruent only with the results foreshadowed by national capabilities.

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The final phase of World War I is waged on the Western Front. The Central Powers concentrate all efforts on the French and Italian Fronts in late 1917, and manage to achieve a marginal advantage. The intervention of the United States, though, overwhelms all chances of success. Congruent with the historical record, national capability estimates indicate that the war was a toss-up in late 1917, while GNP estimates already forecast a victory for the Western allies; by 1918 both measures accurately account for the outcome of the first great war.

Let us now turn to World War II. Again we start by displaying the individual performance of contenders in this massive conflict in a summary table:

Table VII
World War II: Major Actors, 1938-1945

YEAR	GNP	INTERNAL CAP.	GNP	INTERNAL CAP.	GNP	INTERNAL CAP.
	Germany		Italy		UK	
1938	71.3	94.5	23.8	18.0	56.8	51.0
1939	78.5	121.5	25.6	18.6	59.2	84.4
1940	79.2	162.1	25.7	29.5	68.8	158.4
1941	84.0	204.3	25.4	23.0	73.1	169.1
1942	85.6	220.6	25.1	32.9	74.0	179.6
1943	87.0	227.2	22.7	19.1	75.4	179.5
1944	89.2	220.3	18.5	5.0	71.6	176.0
1945	–	–	14.4	4.4	66.6	156.1
	USSR		USA		Japan	
1938	106.8	146.8	199.3	122.2	35.5	73.5
1939	113.4	165.9	216.3	126.6	39.8	78.7
1940	123.8	164.8	234.7	191.0	41.7	90.9
1941	113.9	176.4	272.4	416.1	42.1	105.8
1942	81.7	148.5	307.6	800.8	43.0	126.9
1943	91.6	148.2	348.2	874.1	43.0	175.7
1944	109.0	183.7	373.2	785.9	41.3	224.3
1945	98.3	182.1	366.9	383.8	–	–
	France					
1938	36.0	22.4				
1939	36.3	42.9				
1940	29.9	79.6				

There is little need to belabor this evaluation that is, again, presented so the reader can reconstruct our work and consider alternatives. Still, it is worth highlighting that Germany is the single most powerful actor in Europe, despite having a smaller GNP than the USSR; that the capabilities of France and England have shrunk considerably in comparison to the relative strength these nations held in World War I; that the United States gains most in relative power; and that Japan, with the smallest socio-economic base, matches in 1944 the overall strength of Germany.

Let us now consider the outcomes of World War II which is the most devastating, complex, and extended conflict we consider. This war has been divided into five distinct phases. Consider the summary:

Table VIII

Strength of Coalitions in World War II

YEAR	Western Allies						Axis Powers			
	USSR	FRANCE	UK	USA	GNP	CAP.	CAP.	GNP	GERMANY	ITALY
Western Front – Phase I										
1939	–	42.9	27.9	–	60.0	70.8	140.1	104.1	121.5	18.6
1940a	–	79.6	55.0	–	57.4	134.6	191.6	104.9	162.1	29.5
Western Front – Phase II										
1940b	–	–	158.4	–	68.8	158.4	162.1	79.2	162.1	–
Eastern Front										
1941	176.4	–	–	–	113.9	176.4	170.8	63.0	153.2	17.6
1942	148.5	–	–	–	81.7	148.5	184.9	64.2	165.5	19.4
1943	148.2	–	–	–	91.6	148.2	193.4	67.9	177.2	16.2
Combined European Front										
1944	183.7	–	176.0	633.5	438.1	933.2	225.3	107.7	220.3	5.0
1945	182.1	–	156.1	583.8	414.4	922.0	n.a.	n.a.	n.a.	
Pacific Front									JAPAN	
1942				384.4	147.6	384.4	126.9	43.0	126.9	
1943				349.6	139.3	349.6	175.7	43.0	175.7	
1944				243.6	115.7	243.6	224.3	41.3	224.3	
1945				122.8	117.4	122.8	n.a.	n.a.	n.a.	

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In the initial phase of World War II, the Axis Powers hold a small advantage over the Western Alliance. France is defeated in Phase I because she does not have the strength to successfully oppose a German led invasion, even with substantial support from England. Yet, the superiority in national capabilities is slightly over thirty percent, a level similar to that which Germany achieved at the outset of World War I, when France did not fall. The national capability forecast is only partly correct. The limited superiority of the Axis coalition should have led to a long, protracted conflict and not the swift defeat of France, which collapsed in a matter of weeks. In this case, GNP estimates are more accurate. The GNP of the Axis coalition is almost twice the size of that of the Allies, and this preponderant margin should have led to an easy victory. Thus, while national capabilities and GNP accurately predict the outcome of this phase, the course of the battle is more accurately predicted by GNP than by national capabilities.

The second phase summarizes the Battle of Britain. In this intense air battle, England prevents Germany from launching an invasion. The naval superiority of Great Britain would have counted for little had she failed in the air, since the English Channel is narrow and transport ships can be effectively protected from the air. Despite the British success; this is not a victory for England, rather it is a draw, for Germany is simply prevented from invading, and is not defeated.

National capabilities account with uncanny precision for this outcome. During this simple phase, World War II is reduced to a simple one-on-one conflict. The opponents are both modern nations whose populations are both highly productive. Notice that the overall levels of GNP in England are slightly smaller than that of Germany, but that England makes up the difference by extracting a greater effort from her population to achieve the draw in this phase of the war. Even though both indicators of strength

produce similar results, national capability predicts more effectively and accurately the outcome of the Battle of Britain.

The third phase of World War II is fought between Russia and Germany. This massive campaign produces the largest level of casualties and involves the greatest number of military personnel and equipment during World War II. National capabilities indicate that the Axis coalition is even with the Soviet Union in 1941. This is somewhat surprising since the main victories of the Axis campaign are achieved in this period, but it accurately indicates why Russian resistance is not broken. The Axis Powers hold a marginal advantage in 1942 and again in 1943. This difference is quite congruent with the draw in the battlefield, which changes only with the dramatic defeat of German forces at Stalingrad in the winter of 1943. This event marks the end of German predominance and the beginning of the long road back to eventual defeat.

A very different picture is provided by GNP levels. Soviet GNP is consistently larger than that of Germany, and particularly so during 1941 when her military effectiveness is dramatically challenged. This preponderance is diminished in 1942, but distinctly reemerges in 1943. On the basis of these figures, one would expect the USSR would have managed to place Germany on guard, and not the other way around. Again, the national capability estimates reflect more accurately the course of this major phase, and once more both indicators accurately predict the draw in the battlefield.

The fourth phase of World War II is less interesting. Here, both fronts are combined since they are concurrently active, and the overwhelming preponderance of the Allies is clearly shown by both indicators. The surprising result is that Germany, now standing virtually alone, manages to hold on for so long against such overwhelming odds. Both indicators accurately predict the same outcome.

The fifth phase of World War II is the War in the Pacific, which was waged almost as a separate, even though concurrent, conflict. Japan starts the war with less than half of the capabilities the United States allocates in the Pacific. As the war progresses, Japan manages to increase her effort enormously, and by 1944, almost matches the national capabilities of the US, despite a constant socio-economic base. The last year of this war cannot be estimated, but the defeat of Germany makes this evaluation perfunctory. There is clearly no opportunity for Japan to win in the long run. This conclusion has been drawn again and again by observers of the conflict. The important point is that Japan is a much stronger country than its productivity would indicate. Starting in 1942, the United States commits in the Pacific three times the total output of Japan, and this ratio remains constant in 1943, declines somewhat in 1944 because of the commitments in Europe, and obviously increases after Germany is defeated.

Both estimates of national strength indicate the same outcome, but national capabilities seem to provide a more effective reflection of the strong performance of Japan in a losing cause.

CONCLUSIONS

Our aim is to ascertain whether the measure we have developed of the capacity of the political system is an essential component of any systematic measurement of the strength of nations. The results presented here reinforce the earlier findings that, without political adjustments, comparisons of national capabilities frequently fail to predict outcomes of wars. Still, the overall picture presented here shows accurately how national systems which engage in war achieve victory.

We are nevertheless aware of the oversimplifications and limitations of this project. The exclusion of small countries such as Belgium in World War I or Yugoslavia in World War II cannot be considered unimportant. Our

procedures do, however, provide a simple avenue to include them to obtain more accurate accounting. Additional limitations which cannot be so directly handled are also apparent. More effective estimates of national capabilities could perhaps be made in the case of American activity in the Western European theater and against Japan if the distance between contending parties is taken into consideration. Suggestions for such adjustments have been made by Boulding (1960), and introduced with success in recent empirical work (Bueno de Mesquita, 1981). These additional adjustments may provide a more effective accounting of the course of conflicts. Recall that we do not account satisfactorily for the Franco-German confrontation during World War II. Nevertheless, with these caveats, the results we have obtained provide an accurate summary of very complex conflicts that previously defied description with simple and consistent evaluations of national capabilities.

It is perhaps reasonable to conclude by combining the results of this study with its predecessor, in which the outcomes of wars between developed and developing nations since 1950 were evaluated. A word of caution, however. Recall that the estimates of political capacity used in this presentation are adjusted slightly to accomodate the differences between developed and developing nations, that the construction of national capabilities differs somewhat because different procedures are used to estimate aid, and that internal capabilities have, in this study, no external additional weight. The weight differences used in the construction of national capabilities for developing nations do not affect internal strength in Europe, since all results are simply symmetrically larger. These differences in the construction of political capacity and external aid may affect the estimates somewhat, but we do not expect them to distort substantially the findings.

The power of the national capability measure proposed can be gauged by its efficiency. With measures of strengh based on GNP, only five of nine outcomes of conflicts in Europe are predicted correctly. GNP fails to account for outcomes in the Russo-Japanese War, in the Western Front 1914-1917, in the Eastern Front 1914-1917, and again in the Eastern Front 1942-1943. All the outcomes are correctly predicted with national capabilities. The more complex evaluation of the course of the war is predicted with equal or greater accuracy by national capabilities in all cases except for the first phase of World War II, when Germany defeats France more rapidly than expected.

Adding to this assessment the findings of the previous study reinforces these results. National capability was used to estimate the outcome of the Arab-Israeli conlicts in 1956, 1967, and 1973; the Vietnamese war, where Soviet and American assistance played an important role; the Sino-Indian border war of 1962; and the Korean war in 1950-1953. These conflicts, with the exception of the Sino-Indian war, pitted developed against developing nations and produced outcomes that GNP and alternate aggregated indicators of national capbilities did not predict accurately. The national capability indicator, on the other hand, accounts for all of the outcomes.

Combining the results of both studies, the national capability indicator weighted by political factors accounts accurately for the fifteen conflicts considered, while GNP alone accurately depicts six of the fifteen cases considered. Such improvement is indeed satisfying. Seldom in social science does one face the problem of downgrading results that are perhaps too close to original expectations. The warning we utter is based on the knowledge that these estimates are flawed by the weakness of the underlying data, by the crudeness of the tools used, and by the exclusion of coalition members who, while important, could not be considered here. Yet, we cannot escape the gratifying conclusion that perhaps political quantification is at

long last coming of age. If further tests reconfirm the results obtained here, the measures of political capacity and national capabilities proposed here may become useful tools not only to aid in the evaluations of conflict, but more importantly to begin the evaluation of the process of political development in general.

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SECTION II.   POLITICAL DETERMINANTS OF POPULATION DYNAMICS

The measures of capacity of political systems developed in research completed before the present contract proved to work quite well in monitoring the political effectiveness of <u>developing</u> nations engaged in total wars.   But could the same measures (or an amended version of them) be used to monitor the capacity of political systems in peacetime?   Or should new measures be developed? Or should new measures be developed?   This was a critical question.   We chose a more elaborate course only to make as sure as one could that we had valid indicates.   We decided to develop new measures and we then checked the results obtained with the new indices against the results obtained with the new models.   In this fashion in one research effort we also answered the question to what extent the indices used to monitor governmental performance in wartime could also be used in normal times, when governments were not under great stress.   The test we designed was on an extremely important theoretical point and related our new measures of political costs, i.e. the new indices of political development, to the performance of vital rates in the country.   the new indices to the performance of vital rates. Surely the effectiveness of governmental development on vital rates could be taken to demonstrate the effectiveness of the political system in peacetime.

There are sound theoretical reasons for thinking that a measure of the effects of political change on vital rates will prove an excellent test of how well political systems fulfill their basic responsibilities, supplying in this manner a peculiarly important means of gauging their viability.   All political systems have two cardinal objectives.   The first of these is the defense of the nation against external threat; the other is to arrange matters in such a fashion that demands do not exceed available resources.

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As regards the latter of these two functions, there can be no question but that a great deal of the pressure upon available resources stems from the number of people inhabiting the polity. The problem defines itself from this point of view, therefore, as one of regulating the size of the population in order to control demand. One obvious way of doing this is the effective control of emigration and immigration -- a direct means of regulating population employed by all governments. Another, and more indirect form of regulation is the imposition of constraints upon the pattern of reproduction itself. Reproductive behavior, of course, need not be constrained directly. Indeed, the most effective constraints are all indirect, primarily bearing on the enveloping, contextual behaviors which themselves exert a direct influence on reproduction. For example, fertility rates may be influenced by the availability of housing, which in turn will be influenced by interest rates on money for mortgages, public investment in education, equal pay for equal work by women. The list of such connections can be made long indeed. For all these reasons, for those who study politics the connection between politics and vital rates has special meaning.

In short, the hypothesis which was the starting point of our test is as follows: expansion of political systems would be associated with increases in capacity, and such expansion, if captured by the measures proposed, should be associated with decreases in vital rates. Such an association would validate inter alia the measures of the capacity of political systems that have been constructed.

Of course, it is not contended that 'political development' is the only factor in depressing vital rates. Economic and social development are critical ingredients in the overall mechanisms pushing for fertility and mortality decreases. These have to be taken into account. That economic and

social development had the effect of lowering birth and death rates of national populations has been recognized for the past half century. These connections are described in the theory of the demographic transition, which established the relation between socioeconomic development and vital rates at the macro level.[1] It will be helpful for the reader to have sketched out the bare bones of the conception of the demographic transition in order to understand the overall process we tried to model in order to test the connection between the political and demographic change.

The demographic transition is usually divided into three distinct stages. During the initial stage of potential growth, national populations display characteristically high death and birth rates while maintaining a relatively stable population. The second, aptly named the transition stage, has two distinct phases. In the first part of the trajectory, mortality undergoes a rapid decline which results in a sharp expansion of the population. The second phase involves the rapid decline in birth rates which also continues into the third stage of "incipient decline". In this third stage growth rates are once again low, and may even be negative. There is little doubt that this overall description of what happens to vital rates is accurate in the general outlines it presents, at least in the sense that high rates of fertility and mortality change to much lower levels when socioeconomic development takes place. The association is clearly there. But it is also evident from the findings of one analysis after another than there are vast differences in which countries or regimes seem to react to socioeconomic development and that such variation in the behavior of vital rates are not really accounted for by socioeconomic factors. It is for this reason primarily that the theory of the demographic transition has been criticized at its "pretense" at being a theory.[2]

Our point of departure on the matter has been that the theory of the demographic transition, though basically correct, is seriously underspecified because the massive transformation of the political system under conditions of development on vital rates was not taken into account.[3] The sheer growth of political systems and the consequent expansion of their capacity affects profoundly vital rates. The reason this link has not been previously explored is because there has been no way to measure in a systematic and rigorous fashion the political capacity of nations. We have developed such a measure and can use the demographic phenomena to test its validity.[4]

The measure in question is the index of political costs and it goes further than the political capacity ratio that had been developed to test the performance of political systems in international wars. This new index is constructed in several steps specifically designed to isolate political factors.[5] We start with two points of reference: one is the actual performance of a country in raising revenues; the other is the maximum amount of resources that would be raised if the political and economic systems operated at full throttle. Once these levels are established, we impose separate controls for fundamental economic differences in the tax bases as well as revenue and expenditure patterns so as to adjust the independent sharp differences in the collection and allocation of governmental resources due not to the effectiveness of government but to the structure of the economy. It is clear that the amount of taxes collected is a result of both political and economic factors. But that the shortfall in governments in extracting the maximum they should be above to extract is due to political factors. Finally, the difference between the adjusted maximum and the adjusted actual revenue is used as a rough indicator of the cost governments have not been able to pay to extract the maximum possible of the resources they could extract if they broke

down, or bribed all opposition and bent the political institution to the task of collecting such resources. Knowing how governments fall short of reaching a hypothesized maximum, we can infer what they can do.[6]

Let us turn to a brief description of the steps taken in putting together the measure of political costs. The maximum level of extraction is established by the performance of nations under the extreme stress of war. The performance of governments in wartime is determined largely by political factors and little to do with type of political system or levels of economic development. In total wars governments will try to collect all available resources with which to carry on the fight.[7] In the sample of wars studied, two nations performed well above the rest in obtaining resources from their populations. One was North Vietnam, in the recent war of the North against the South, each side helped by patrons, and the other was Britain, during World War II. North Vietnam extracted some forty-seven percent of its gross national product for the war effort. (This can be contrasted to the less than fifteen percent extracted by South Vietnam.) Britain extracted fifty-four percent, and was followed by Japan, Germany and the Soviet Union.

The performance of these nations suggest, as we noted earlier, that democratic or totalitarian forms of government or levels of economic development have little to do with political capacity. Thus democratic Britain outperformed a totalitarian Nazi Germany by a substantial margin, and North Vietnam's totalitarian dictatorship far outperformed South Vietnam's authoritarian regime, despite extensive American support. Moreover, while Britain was a relatively wealthy society in World War II, North Vietnam had a per capita income of only slightly more than one hundred dollars and still managed to extract substantial resources from a population that had little wealth to spare. Hence we assume for purposes of this work that these two

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countries represent the limit of political capacity at their respective economic levels despite their very different forms of government, and, more important, that fifty-five percent and forty percent of Gross product represent the maximum levels of extraction possible for developed and less-developed nations respectively. Such levels indicate what governments can do when put to the ultimate test of their resolve and ability. These maximum levels reached under war time conditions cannot be maintained indefinitely and, obviously, are much higher than the levels observed in peacetime.

Second step. The level of achieved extraction is indicated by the actual total tax revenue obtained by each society. The aggregate includes direct and indirect taxes, and profits from governmental enterprises, but excludes revenues obtained from unspecified sources. The object is to identify elements where the avoidance of taxation is an important issue since such evasion indicates an unwillingness on the part of the population, for the sake of personal profit, to help shoulder the collective burden of supporting the government.[8] After economic adjustments are made, we believe that relatively low or high extraction indicates governmental structures that are respectively politically weak or strong.

A third step consists of the adjustments necessary to separate economic from political influences in the collection of taxes. In developing countries, one needs to concentrate mainly on the revenue side of the equation since total revenues fall far short of desired government income. Thus governments can be presumed to extract all they can. Fiscal economists have effectively documented that in developing nations, governments extract to the limit of available resources; thus, differences in the revenue base alone account for most of the economically induced differences in tax rates.[9] Specifically, controls for the share of GNP in agriculture, mining, and

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exports will account for most differences in revenues due to purely economic differences among less-developed nations.

Development specialists will not be surprised by such results. A developing country with a large foreign trade sector or large deposits of minerals has a substantial advantage in collecting revenues because they obtain such resources from other countries, not their own people, and also because it is much easier for the government to tax the few enterprises producing mineral resources or to collect custom duties. The immense revenues of the OPEC nations are an obvious example of what we are talking about. Indeed, when controls for the mineral contribution to the generation of revenue are introduced, most OPEC countries fall towards the bottom of any comparison of governmental performance. In this study, we found that adjusting for mineral resources was sufficient to control for differences in the revenue base, since export and per capita income are already reflected by the variations in the maximum extraction levels.

At the developed level, it is crucial to adjust concurrently for governmental expenditures as well as revenues. It is simply not possible to assume that developed societies extract all the resources they can from their populations, for taxation is effectively constrained by policy preferences. In Sweden, for example, health services are provided to the population by the public sector, while in the United States, similar services are still largely delivered by the private sector. Thus, the Swedish government must tax its citizens to cover health expenditures, while the United States needs to tax Americans much less. The difference in the level of extraction will, to a degree, reflect not a difference in capacity, but a difference in policy. In comparing the performance of American and Swedish societies, then, one must

adjust for policy preferences before estimating differences in political costs.

To avoid giving "credit" unjustly to a country with a higher level of extraction, despite the possibility that it may, in fact, perform less ably, we adjust for key governmental expenditures, which vary with the levels of governmental services. The likely sources of major differences in taxation caused by varying preferences in patterns of public and private expenditure are levels of health, education, social security and welfare. For developing nations, it was sufficient to subtract revenues collected for social security from the total revenues. For developed nations, social security contributions were added to the excess expended on social services and then that total was subtracted from achieved revenue. These controls proved effective, but further experimentation is necessary.

In the last step, we subtract what countries have extracted from the maximum they are supposed to be able to extract. We argue that this difference is due to the fact that although the elites would wish to extract all the resources they can (given the goals they wish to achieve) but that they do not possess the resources required to increase extraction. The size of the negative value indicates the amount of unused but available or "slack" political costs. Thus a capable country will have a smaller negative value than a less capable one and a fully mobilized society will approach zero.

The measure of political costs can be used to compare political structures at similar levels of economic development, but it is not a fully independent measure of political performance. It tells us, in other words, how effective a government is in obtaining the resources at its disposal relative governments facing similar socioeconomic constraints, but does not indicate directly the absolute level of political costs to be met if the

country was to reach the established maximum of possible extraction given its economic productivity. The measure by which we are to estimate political performance in peacetime is certainly not perfect, but it produces satisfying results.

One point needs some elaboration. Political costs vary across levels of socioeconomic development in curvilinear fashion. AT the beginning of the process of state construction, the marginal costs involved in expanding extraction from the growing pool of human and material resources should be quite high. Central governmental institutions are not yet firmly in place and competing groups have strong and entrenched regional or tribal basis. In the middle of the state building process, on the other hand, the costs should reach their lowest point because political structures are in place but competing non-governmental organization have not yet fully developed. Finally, once the state structure has been built and is in place, costs should rise again to a very high level since every new allocation of resources now has a well entrenched and organized constituency that must be considered and brought into the governmental coalition. Our expectations are fully borne out by the data on political costs for the countries in this study. If the sample of countries is divided into five groups the mean for each of the five groups arranged in the order of their economic productivity are shown below.

Structure of Political Costs

| | POOR | | | ADVANCED | |
	Under-developed	Under-developed	Developing	Developing	Developed
Pol. Cost	-27.6	-26.9	-25.2	-25.8	-31.1
Cases	141	585	449	280	413

As expected, the underdeveloped and developed countries have a higher mean for the political costs than the developing nations. This difference provides the first indication that the marginal costs of political extraction are higher for countries at each extreme of the development ladder and are lower at the center. Further, the range for the developing group is almost twice that for the underdeveloped and developed countries, indicating that those are the nations with the maximum amount of flexibility. We have detailed and elaborated these evaluations in the manuscript, <u>Births, Deaths and Taxes: The Demographic and Political Transitions</u>, where we also link these changes to an overall theory of political development.[10]

Let us now turn briefly to the remaining variables in this analysis.

SOCIOECONOMIC INDICATORS

The transformation of the political system is only one of the structural changes that brings down vital rates in the demographic transition. Other factors are known to cause the decrease: education, including particularly the education of women; urbanization; increases in income; technological advances in the health sciences; improved sanitation and transport facilities; and changes in family structure. One has to take into account that there are two alternative ways one can go about constructing this portion of the model required to test our central hypothesis.

One was to develop a sophisticated model that concurrently considers all contending variables while determining the impact of political change within this overall context. We did not choose this approach for two main reasons. First, most of the available socioeconomic variables used in population analysis were known to reflect similar effects. Levels of health, income, urbanization or sanitation etc. are all highly correlated.[11] It was not essential, therefore, to develop a complex model that would use them all. A

second reason for not choosing a complex approach was that we can measure political capacity only indirectly. Such governmental activities as the expansion of water or sanitary facilities, the building of roads, the reduction of mortality caused by civil or international strife, and the adoption of universal education at least to some extent result from, and hence reflect, increasing levels of political capacity and if included concurrently with our measure of the capacity of political systems, could distort our estimates of political effects. Consider, for example, the case of education, which is often associated with demographic change. The introduction of universal education or the extension of minimal levels of compulsory education often reflect political acts that enforce governmental choices on the family. For example, in Cuba or Malaysia, governmental pressure to expand educational access has contributed to the disruption of traditional values, and in so doing, has also contributed to changed fertility norms and practices. In such cases, the resulting changes in fertility are ultimately due as much to politics as to the more proximate, and more commonly measured, factor of education.

Thus we chose to use per capita product--as the single, all-encompassing summary measure of the social and economic changes that affect vital rates. As many have noted, GNP per capita is substantially interrelated with other socioeconomic factors while the relation of GNP/pop to the political capacity indicator used was weak.[12] The simplicity of the proposed model was clearly an advantage: the relation between our dependent and independent variables would stand out in bold relief, and, of course, if no relation were present, this too, would be readily apparent.

We were naturally aware of the difficulties imbedded in any use of per capita product. Severe distortions result in any comparison over time from

the many transformations required in translating national currencies into current and constant dollars, from the use of indices when direct estimates would be preferable, and from the unavoidable errors introduced by changes in technology that affect the composition of goods produced, over time and across nations. We did not attempt to improve this measure, but simply relied on the World Bank data where a sophisticated attempt to minimize such distortions had already been made.[13] The reason is simple: we knew that whatever error one had to contend with on the economic side would be smaller than the error contained in our political variable. Undue precision seemed unwarranted.

DEMOGRAPHIC VARIABLES

The last step in preparing for our analysis required the measurement of the vital rates which we wished to use as the dependent variable. For this purpose we chose crude birth and death rates as the basic indicators, obtained by counting the number of children born and the number of deaths occurring in a given year, per one thousand total midyear population.

The decision to use crude rates, standardized to correct for differing national age distributions, was based on three factors. First, data for crude fertility and mortality rates were much more readily available than, for instance, for such more refined measures as gross or net reproduction rates, or infant mortality rates. Second, to the extent that political leaders are aware of demographic rates, they tend to be aware of the crude birth and death rates and the crude rate of natural increase, derived by subtracting the death from the birth rates. Thirdly, even if we had adequate series of the more refined indicators, it is doubtful that the level of analysis with which we were dealing would have justified the use of such refinements, particularly when we note the very high correlations existing between the crude measures and more refined variants.

Despite the decision to use crude rates as our basic dependent variable, we did choose to adjust the crude rates to overcome the distortions which might arise from substantially differing population age distributions among nations. We used two separate adjustments to minimize the distortions in question.[14]

A relatively orthodox standardization procedure was used to adjust death rates in order to eliminate the effects of variation in the age structure. Using a standard population, we computed what the crude rates would be if there were no variations in age structure. For each time poin~, the age specific mortality rate of a given country is multiplied by the equivalent age-specific death rate in a standard population. The adjusted crude death rate is obtained by multiplying the ratio between the cumulative total mortality rate across age groups in the standard population and the size of the standard population. The standard population used throughout is that of England and Wales in 1960. All adjustments are made at five-year intervals.[15]

In the case of birth rates, the objective is again to take out variations introduced by age structures. Unlike the adjustments of crude death rates, an orthodox procedure to standardize fertility is not readily available. Our concern is to reduce the differential impact of the number of couples of childbearing age which, in a relatively young population, will increase and, in an old one, depress fertility rates. To this end we determined, at five-year intervals, the ratio between the number of women ages 15-44 in each nation and the same group in the standard population, that of England and Wales in 1960. The adjusted crude birth rate was obtained by multiplying the original crude rates by this ratio.[16]

As expected, the adjusted mortality rates increased and fertility rates decreased everywhere except among a few highly developed societies. Further,

in relatively young populations, the effect of standardization is strong
while, in the relatively older populations, the adjustments are weak. Thus,
the age distribution adjustments desired have been achieved.

ANALYSIS: THE SAMPLE

The demographic transition model depicts the process that nations undergo
as they modernize. To capture the dynamics of this process, we attempt to
cover the full range of national development over the time span for which data
are available. A thumbnail sketch of the data we worked with will be
useful.[17] The data are confined to the 1950-1975 period which is not
sufficient to cover the full demographic transition in most nations. National
coverage is limited by missing data. Some nations are entirely excluded due
to lack of information, others are included only after they become independent
and have a government of their own, and still others, including the
centralized communist governments and small city-states, are excluded because
we cannot yet measure their political capacity.

Two notable drawbacks of the sample deserve special emphasis. First, the
data available do not contain a fair and complete "portrait" of the
demographic transition at its earliest stages. The poorest nations are the
least likely to compile credible demographic data, and similarly are least
likely to keep adequate statistics on national accounts and on fiscal
resources. Moreover, only a few countries still have very high birth and
death rates. Most countries have already managed to reduce at least the death
rate. Second, communist countries were also excluded. One cannot measure at
the present time the political capacity of the Eastern European and Soviet
governments because the economic structures in these societies are too
different from those of non communist nations. This exclusion creates a gap
between the developed and the developing nations, where most of these

centralized nations would fit on the basis of economic development. Despite these limitations, our sample is entirely sufficient to explore the relationship between political capacity and vital rates.

THE MODEL

To analyze the process of demographic transition, we constructed a model that would capture the different curvilinear patterns traced by fertility and mortality rates on the one hand, and by economic and political factors on the other. We anticipated that, propelled by economic and political growth, death rates would fall dramatically while birth rates would initially be sustained at high levels. Subsequitly death rates would level off while fertility came down, and eventually these two rates would converge again at an absolute level lower than at the start of the process.

Some adjustments were required to translate this complex picture into a testable proposition. Recall that the rough shape of the demographic transition process is known, but that one cannot predict with accuracy the points of inflection or the exact linkage, if any, between changes in birth and death rates and the variation in economic and political development. This lack of theoretical specificity prevents the use of advanced non-linear models whose stability depends to a large degree on the correct specification of the structure analyzed, and it is obvious that simple linear models cannot adequately capture the relationship under study. To solve this problem, we use a model that breaks the process into linear segments but still allows them to be considered concurrently. This approach reflects our rudimentary specification of the underlying curvilinear trajectories, but still provides estimates that can be easily interpreted, disaggregated, and restructured. The linear approximation of the non-linear pattern we expected to find in the demographic transition can only be effective provided the data are roughly

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grouped at the inflection points. For the purposes of analysis, we distinguished three such groups. The most advanced nations, labelled "developed," incorporate societies that have, in general, completed the demographic transition stage and have entered the period of potential decline. We distinguish this group simply by placing in it all members of the OECD: they are the developed Western bloc nations, including Japan.

The remaining two groups are drawn from the nations excluded from the developed category. We hoped to reproduce the two intermediate phases of the transition, first when mortality drops while fertility remains high, and then when both mortality and fertility decline. There was no simple, consistent way to determine exactly where to make a split. Yet clearly, very different patterns of economic, political, and demographic performance are present in such countries as Nepal and Brazil, and should not be lumped together. The non-developed nations are divided into "underdeveloped" and "developing" groups by splitting this sample in half for each year of the series This minimizes the distortions produced by the inclusion or exclusion of different nations over time and diminishes the effect of overall growth in relative wealth over time The sample is evenly distributed among the two groups and shows that most nations remain relatively economically static, and only a few show rapid and sustained growth. Consider now the exact structure under consideration, in a linear model broken into the three groups:

$$Y_{kt} = \beta_0 + \beta_1 d_{1t} + \beta_2 d_{2t} + \gamma_1(d_{1t}x_t) + \gamma_2(d_{2t}x_t) + \lambda_1(d_{1t}z_t) + \lambda_2(d_{2t}z_t)$$
$$+ \delta x_t + \omega z_t + \varepsilon$$

collecting terms:

k=1 Underdeveloped

$$Y_{1t} = (\beta_0 + \beta_1) + (\delta + \gamma_1)x_t + (\omega + \lambda_1)z_t + \varepsilon$$

k=2   Developing

$$Y_{2t} = (\beta_0 + \beta_2) + (\delta + \gamma_2)x_t + (\omega + \lambda_2)z_t + \epsilon$$

k=3   Developed

$$Y_{3t} = \beta_0 + \delta x_t + \omega z_t + \epsilon$$

where:

Y = Birth rates or death rates

k = Type of nation; 1=undeveloped, 2=developing, 3=developed

t = Time: 1950, 1951,....., 1975

x = Political Cost

z = Economic Output

$\beta, \delta, \gamma, \omega, \lambda$ = regression coefficients

ϵ = error term

This representation of the transition process has important advantages. The static cross-national model captures to some degree the dynamics of a demographic transition by ordering across time the short temporal segments available for each country. Note, further, that a linear approximation to a non-linear pattern is provided by estimating concurrently but separately each regression coefficient in this model for the three groups defined. Finally, it is possible to disaggregate the levels of association achieved by economics and politics and separate their individual effects on vital rates for each group or combination of groups desired.

For our purpose, this ability to disaggregate levels of association is of central importance. By construction it is possible to analyze any combination of groups and explanatory elements without affecting the regression coefficients but obtaining for each cut levels of association that vary in accordance with the strength of the relationship encountered. Two important implications follow. First, the demographic transition phase is over in most

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developed nations but affects in its full force the societies still in the process of early development. Thus, the impact of political and economic variables on populations where the process of demographic transition is strongest and presently still in full swing, can be directly determined for each group by reestimating the full model for the appropriate cases. Second, we note that while the effects of economics and politics are calculated concurrently, their respective, separate impacts can be directly estimated. Thus, uncontaminated measures of the effects of politics are derived by subtracting the levels of association obtained from similar models including economics and politics together, and then economics alone.

THE ANALYSIS: CHANGE IN VITAL RATES

Our basic hypothesis is that the greater the political capacity of a nation, the greater and more rapid the reduction in birth and death rates will be. We expect to find a negative relationship between political capacity and vital rates at every level of economic development. In other words, the greater the political effectiveness, the lower we expect vital rates to be. However, we expect that the strength of this relationship will vary across levels of economic development. We further expect to observe particularly substantial effects on mortality in the initial transition phase when mortality should decline rapidly, prior to the delayed effects on fertility. As the process continues through the second phase, we expect more accentuated effects on fertility, while mortality starts to level off. We also expect that political effects will be minimal once the transition stage is complete.

The results of our analysis can be presented simply in two parts. Consider fertility first.
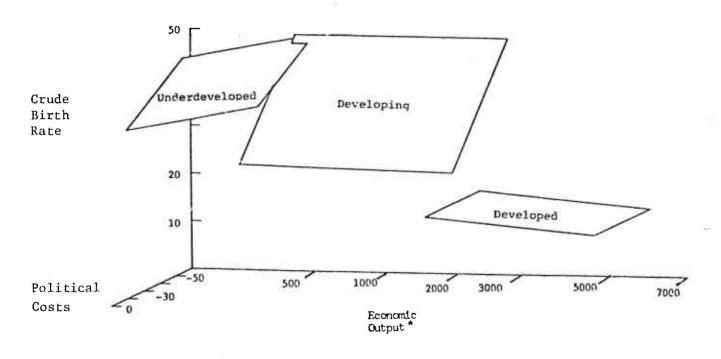
Fertility

Politics play an important role in reducing the fertility of underdeveloped countries. First, note that the effects of economic wealth on the very poor group is contrary to original expectations.[18] An initial increase in income is associated with an increase in fertility. But political growth acts as a countervailing force and results in an overall decline in fertility. Moving next to the developing group, where the state structure is more fully in place and where governmental power and control are more effectively institutionalized, politics combines with increasing wealth to account for drastic reductions in fertility. In the developed nations, as expected, the political effects are weak and change almost entirely absent.

Close observation of Graph I reveals a wide gap between the developing and the developed world. We believe that the discontinuity between the developing countries and the developed world as represented here reflects deficiencies in the composition of our sample. The reader will recall that a small number of centralized Eastern European countries, lodged in an economic development level between the developing and developed world, were omitted from our study, since we found ourselves unable yet to estimate how politically capable their governments are. We believe that, if and when they are included, the disparity between the expectations of the demographic transition and the graphs will be reduced, providing a smoother, more symmetrical curve.

Let us now attempt to attach some meaning to the coefficients of our measure of political costs. We have established that levels of extraction reach their absolute limit at approximately forty and fifty five percent for undeveloped and developing nations respectively. Few nations fit to be called organized communities have an adjusted tax rate below 10 percent of total

GRAPH 1.   RELATION OF BIRTH TO POLITICAL COSTS AND WEALTH
1950-1975

*Scale = square root of GNP per capita to collapse range of values.

UNDERDEVELOPED: CBR = 32.2 - .27 Political Costs + .011 Economic Output

DEVELOPING: CBR = 20.1** - .84 Political Costs - .004 Economic Output

DEVELOPED: CBR = 20.3 - .006* Political Costs - .001 Economic Output

* = coefficient not significant   ** = intercept not significant but added.

R^2 = .72   Number of cases: 1868

output. Therefore, disregarding mineral output, the effective range of political costs for less developed nations is between 10 and 40, or a total of 30 units. Note that the unstandardized regression coefficients for undeveloped and for developing nations imply that for each point of political development increase, we can expect an associated decrease of 0.27 and 0.84 points respectively in fertility rates. The corresponding decrease due to politics in developed nations is a trivial 0.006.

If we consider these equations predictive, and a difference of 30 points the limit, then the maximum range of change in political effectiveness would result in an 8 point difference in fertility rates for the undeveloped group compared with a 25 point reduction for developing nations, where the response to political change had been postulated to be more sensitive and the effect of economic change is both stronger and in the same direction.

Carrying this discussion further, we note that in reality, few nations are able to demonstrate an increase in political performance by more than 10 points over the 25 year period surveyed here. Thus, the predicted effect of increases in politics is to reduce crude fertility rates by 2.7 and 8.4 per thousand for underdeveloped and developing countries respectively. Over time, politics would then account for about one third of the total fertility change in the process of demographic transition.

The political costs measure shows that changes in the political system affect fertility rates negatively but with uneven strength within each of the less developed groups considered. In the poorest underdeveloped countries, the path to a balanced population will be discouragingly difficult because economic advances result in fertility increases that compensate for the reduction achieved with improved political capacity. The outlook is brighter

for the group of developing nations where both economic and political improvements lead to reductions in fertility.
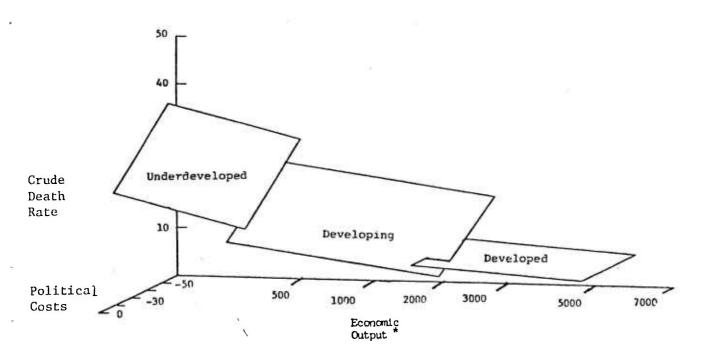
Let us now turn to death rates.

Mortality

The strongest effects on death rates, both from politics and economics, occur at the early stages. Here again, we must note the difficulty caused by the unavoidable deficiencies in our sample. The curvilinear trajectory of mortality rates, moving from high to low, is foreshortened because of the limited time period explored and the omission of a number of very poor countries from our sample. The representation of countries still in the initial stages of nation building is poor not because they are absent but because the data are sparse. Given the theoretical structure under investigation, we speculate that the effects of politics are considerably attenuated because of these sample constraints, and suggest that in a more complete presentation, the political effects registered in the first group would be even more pronounced.

Despite these limitations, the effects of politics on mortality are consistent with our expectations. Note that in the initial period, both economic and political change contribute to the potentially disastrous demographic imbalance. Among underdeveloped countries, mortality falls rapidly even under weak political and economic stimuli, creating a substantial gap between levels of reproduction and mortality. In the developing nations, the combined effects of economics and politics are still strong, though less so than at the outset, when much of the reduction is actually achieved. Among the developed group, economic effects remain significant while politics has only an insignificant impact.

GRAPH 2. RELATION OF MORTALITY TO POLITICAL COSTS AND WEALTH
1950–1975

* Scale = square root of GNP per capita to collapse range of values.

UNDERDEVELOPED: CDR = 19.3 – .38 Political Costs – .015 Economic Output

DEVELOPING: CDR = 12.2** .33 Political Costs – .002 Economic Output

DEVELOPED: CDR = 11.3 – .04* Political Costs – .001 Economic Output

* = coefficient not significant   ** = intercept not significant but added.

R^2 = .72   Number of cases: 1868

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Consider, once more, the coefficients attached to our measure of political costs. A predictive interpretation of our equations, using again a 10 point increase in political costs, would give us a reduction of between 3 and 4 points in our adjusted crude death rates for both the undeveloped and developing groups. For the developed nations, politics has only a negligible impact on deaths, as it had had with births. For the range of nations considered, politics is a less important determinant of change in mortality than in fertility rates. In general, these results conform to expectations.

For mortality reduction, the picture is bright since both economics and politics operate to reduce mortality. It is clear though, that, especially among the underdeveloped group, mortality exceeds the fertility decline. Birth and death rates initially diverge because political change affects mortality as much as fertility, while economic change increases the expansion of population. The danger of rapid population growth is present. Only when nations reach the productivity levels of the developing group do changes in political capacity have the effect of altering fertility far more than mortality, thus contributing to the reimposition of a stable population.

There are, however, still important unanswered questions for which only plausible suggestions can be advanced. We must determine why politics is such an important driving force in reducing mortality and fertility rates in the less-developed world, but loses importance among developed societies. We suggest two factors, without however implying that they constitute a complete picture. First, as both mortality and fertility approach the low levels typical of developed nations, the range for further reductions is substantially reduced by the limits on life expectation. Second, it is clear that governments may try to raise fertility which is falling to or below replacement levels. Paradoxically then, to the extent that the unintended

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effects of growth in political changes had been a factor in reducing vital rates, one might expect the intended effects of policy to work toward the reversal of fertility reduction trends among developed countries. It is too early to say to what extent such policy efforts will be successful.

Equally important is the sequence in which political change affects vital rates. Mortality rates are affected directly and powerfully in each of the less-developed groups, but changes fertility rates only after some delay. Again this pattern has a plausible explanation. The desirability of reducing sickness and death is a generally accepted goal. Not so with fertility. Thus, mortality can react much more directly to the introduction of centralized governmental organization through, for instance, introduction of the types of public health measures which can readily reduce potentially devastating epidemics. The more complex and ingrained patterns associated with fertility are affected only when the political system is more highly developed; when universal education becomes an accepted norm, and when the political system provides women with potential roles outside of the home environment, and these opportunities are enhanced to the point that they interfere with reproductive behavior and increase the cost of rearing children.[19] The reader should bear in mind, however, that we are talking here, not about policies specifically directed at population control, but rather about changes in demographic trends brought about by variations in national political capacity as a whole, irrespective of whether the governments involved have pursued explicit population policies.

RELATIVE EFFECTS OF POLITICS

One more point needs to be made. It concerns the relative impact of the political and economic structures on demographic change during the process of political development. To provide a partial answer, we isolated the relative

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contribution of politics versus that of economics and broke the process of demographic transition down into its different stages. Recall that, by construction, regression coefficients do not vary, but levels of association will change when the model is estimated separately with economic and with political factors, or when effects are reestimated for component subgroups. This allows us to look at the independent contributions of politics and economics for every phase of the demographic transition. Consider Table 1.

TABLE 1. EFFECTS OF THE MEASURE OF POLITICAL COSTS
ON VITAL RATES: SUMMARY 1950-1975

	Cases	FERTILITY RATES R^2	R^2 imp.*	MORTALITY RATES R^2	R^2 imp.*
All nations	1868	.72	.07	.72	.05
Underdeveloped and Developing groups only	1455	.29	.19	.50	.09
Underdeveloped	726	.12	.07	.26	.17
Developing	729	.27	.24	.18	.13
Developed	413	.09	.00	.46	.02

*R^2 imp: improvement is calculated by subtracting the variance explained with a model using political and economic factors from the same model using only economic factors.

When all nations are considered concurrently, the direct contribution of politics to the understanding of demographic change is .07 for fertility and .05 for mortality. This total represents slightly over 10 percent of the total variance accounted for in births and less than 8 percent in death rates. Why should one be concerned with such weak findings? One important reason springs immediately to mind. At this level of aggregation, the impact of wealth on population change is overemphasized. The importance gi to economic factors is based, to a large extent, on the static differences in levels of income between the underdeveloped, the developing and developed

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groups, which we can not yet isolate from politics. Note that when we consider underdeveloped and developing nations alone, the overall variance explained drops to 29 and 50 percent for birth and death rates, while the absolute and relative contribution of politics increases markedly. While in the whole sample, less than 10 percent of the change in vital rates accounted for was due to politics, now the percentage is 65 for births and 18 for death rates. In fact, when we begin to unravel the fundamental dynamics of the demographic process, we find that economics does not perform better than politics. The effects of politics are magnified in the underdeveloped and developing groups by further disaggregation. Politics contributes as much as, if not more than, economics to the decline in population rates predicted by the demographic transition model. By combining societies during and beyond the transition stage, it is difficult to avoid the conclusion that too much impact is attributed to the levels of wealth achieved.

CONCLUSIONS

The results obtained are mixed. It is evident that political capacity as measured by political costs does in fact affect fertility and mortality rates, and that as postulated, these effects are substantially more important while the process of change is under way than after the process has been completed. Further, we have demonstrated that when one disaggregates demographic change into its component stages, part of the overall explanatory power is lost – but politics emerges as a major driving force of demographic change. In addition, we have shown that, while too much weight seems to be attributed to economics when the sample is aggregated at the world level, these two powerful factors, politics and economics, between them account for about half of the total variation in the vital rates, and hence in the structure of populations. Our analysis shows that political costs are an integral component of the process

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of political development and a major contributor to secular changes in vital rates. When national development starts, political change contributes to the lowering of death rates and subsequently helps to stabilize the population's structure through lowered birth rates. Nations whose governmental capacity begins to decay, or fails to improve further once initial gains have been made will, in effect, suffer substantially more and for far longer periods of time from a population imbalance. In sum, politically capable nations do have an edge over their less organized counterparts. The implications of this observation, particularly for the countries caught in the backwaters of low political capacity, cannot be lost on policy makers whose goal is to manipulate the existing structures.

Finally, and perhaps most important is the finding that political costs can be used directly to account for behavior of the political system in non conflict situations.

Notes

[1]The paternity of the Demographic Transition is in some dispute. The first use of the term and a full blown elaboration appears in Frank Notestein's "Population: The Long View," in Theodore Schultz ed., Food for the World (Chicago: Chicago University Press, 1945). Notestein elaborated the proposition extensively in "Economic Problems of Population Change," 8th International Conference of Agricultural Economists (1953). Much of this work is based on Warren S. Thompson, "Population," The American Journal of Sociology 34, 6 (May 1929): 959-975, later expanded in Population and Peace in the Pacific (Chicago: Chicago University Press, 1946) pp. 22-35.

[2]Regular demographic patterns can be established by displaying vital rates over time, but time is not a causal factor and may or may not be associated with socioeconomic changes.

Nathan Keyfitz summarizes the confusing relationship between income growth and population: "Among developing countries, Pakistan is increasing at over 3 percent and India at less than 2.5 percent, yet Pakistan seems to be making more economic progress. Iran's rate of population increase is much greater than Nepal's, and so is its economic advance. Brazil and Venezuela are not increasing in population less rapidly than their stagnant neighbors; indeed, Argentina and Chile, with very low birth rates, may be becoming poorer absolutely. On the other hand, sub-Saharan Africa has high rates of population increase and low income growth . . . the relation the theory predicts is not at all evident." Applied Mathematical Demography (New York: John Wiley and Sons, 1976), p. 363. Barbara Janowitz, "An Empirical Study of the Effects of Socioeconomic Development on Fertility Rates," Demography 8 (1971): 319-330, found in 5 European countries that through time, longitudinal relations are definitely different from cross-sectional regressions. Ansley Coale, "The Demographic Transition Reconsidered," International Population Conference, Liege International Union for the Scientific Study of Population. John C. Caldwell, in "Towards a Restatement of Demographic Transition Theory," mimeo (February 1976), argues that change in family structure from an extended to a nuclear family, not economic rationale, are responsible for the Demographic Transition. Katherine Organski and A.F.K. Organski, Population and World Power (New York: Alfred A. Knopf, 1961).

[3]For an important systematic study of the impact of population policy on demographic change, see W. Parker Mauldin and Bernard Berelson, "Conditions of Fertility Decline in Developing Countries, 1965-1977," Studies in Family Planning 9, 5: 109-114 and Appendix F; Ronald Freedman and Bernard Berelson, "The Record of Family Planning Programs," Studies in Family Planning (January 1976): 1-40.

[4]Karl Deutsch, "Social Mobilization and Political Development," in Jason Finkle and Richard Gable, eds., Political Development and Social Change (New York: John Wiley and Sons, 1966); Ted Gurr, "Persistence and Change in Political Systems, 1800-1971," American Political Science Review 68, 4 (1974): 1482-1504; United Nations Research Institute for Social Development, Contents and Measurements of Socio-Economic Development (New York: Praeger, 1972); Irma Adelman and Cynthia Morris, Economic Growth and Social Equality in Developing Countries (Stanford: Stanford University Press, 1973); Bruce M. Russett, Hayward Alker, Jr., Karl Deutsch, and Harold Lasswell, World

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Handbook of Political and Social Indicators (New Haven: Yale University Press, 1964); Charles Taylor, ed., World Handbook of Political and Social Indicators, vol. 2 (New Haven: Yale University Press, 1978).

[5]A.F.K. Organski and Jacek Kugler, The War Ledger (Chicago: University of Chicago Press, 1980). For a methodological evaluation of the use of indirect evidence, see Jacek Kugler, "The Use of Residuals as Proxies to Measure Concepts," mimeo, Harvard University, Center for International Affairs, (1981).

[6]The measure of political capacity is constructed as follows:

$$\text{POL. CAP.}_{it} = -1 \times (\text{Adj. Max Extraction}_{it} - \text{Adj. Tax Ratio}_{it})$$

where: i: nations in sample
       t: time, 1950-1975

The controls applied to differences in revenue base are:

$$\text{ADJ. MAX. EXTRACTION}_{it} = \text{MAX. EXTRACTION} + m_i(\text{MINING RATIO}_{it} - \text{MEAN}$$

$$\text{MINING RATIO}_{it})$$

where: Maximum Extraction = 55% for Developed Nations, 40% for Developing
                           and Underdeveloped Nations

Mining Ratio = Mineral Production over Gross Domestic Product

m = Extraction Weight use to approximate the relative ability of nations to gain resources from mining. Following the logic of maximum extraction, we set them at .55 and .40 for developed and less-developed nations respectively.

The controls applied to the difference in expenditure patterns:

$$\text{ADJ. TAX RATIO}_{it} = (\text{GENERAL GOVERNMENT REVENUE}_{it} - \text{SOCIAL SECURITY}_{it}$$

$$- \text{NON TAX REVENUE}_{it})/\text{GNP}$$

where:

Social Security: For Underdeveloped and Developing Nations, only Social Security Contributions are used since this component is small and usually not accurately reported. For Developed Nations, where a large "hidden" expenditure in social security is covered from general revenues, we adjust the basic contributions by expenditures as follows:

$$\text{SOCIAL SECURITY}_{it} = \text{SOCIAL SECURITY CONTRIBUTIONS}_{it} \times \text{SOCIAL SECURITY}$$

$$\text{EXPENDITURE}_{it}/\text{SOCIAL SECURITY CONTRIBUTIONS}_{it} \text{ First step.}$$

[7]A.F.K. Organski and Jacek Kugler, "Davids and Goliaths: "Predicting the Outcome of International Wars," _Comparative Political Studies_ 11, 2 (1978): 141-180; and Organski and Kugler, _The War Ledger_, pp. 64-103, 217-222.

[8]For the rationale involved in these particular selections, see Roy Bahl "A Regression Approach to the Effort and the Tax Ratio Analysis," _International Monetary Fund Staff Papers_ 18 (1971): 570-612.

[9]For details on the underlying fiscal structures, see: Jorgen Lotz and Elliott Morss, "Measuring ´Tax Effort´ in Developing Countries," _IMF Staff Papers_ 16 (1967): 478-99; Raja Chelliah, "Trends in Taxation in Developing Countries," _IMF Staff Papers_ (July 1971): 254-331; Roy Bahl, "A Regression Approach to Tax Effort and Tax Ratio Analysis," _IMF Staff Papers_ (November 1971): 570-610; Raja Chelliah, Hassel Baas, and Margaret Kelly, "Tax Ratios and Tax Effort in Developing Countries, 1969-71," _IMF Staff Papers_, DM/74/47 (May 2, 1974); and Alan A. Tait, Wilfrid Gratz and Barry Eichengreen, "Internal Comparisions of Taxation for Selected Developing Countries, 1972-76," _IMF Staff Papers_ 26, 1 (March 1979): 123-156.

[10]For a full elaboration see Organski, et al. _Births, Deaths and Taxes_.

[11]United Nations Research Institute for Social Development, _Contents and Measurements of Socio-Economic Development_ (New York: Praeger, 1972).

[12]At the initial stages of this project, we collected for a sample of nations selected socioeconomic characteristics that could be included in a complex model. The data is available only for a cross-section of the sub-sample of nations eventually used in this analysis, but the patterns that emerge are quite clear. GNP per capita is correlated with education (R: .66), urbanization (R: .66), and population density (R: -.72), while political capacity never reaches R: .10. See also Parker Mauldin, _op. cit._

[13]Data used is from World Bank _Socio-Economic Data Bank_, updated in _World Tables_ (1979); For details of problems of comparison, see: Milton Gilbert and Irving Kravis, _An International Comparison of National Product and the Purchasing Power of Currencies_ (Paris: OECD, 1954); Milton Gilbert, _et al._, _Comparative National Products and Price Levels_ (Paris: OECD, 1958); Wilfred Beckerman, _International Comparisons of Real Income_ (Paris: OECD, 1966). For developing countries see: Irving B. Kravis, Zoltan Kenessey, Alan Heston, and Robert Summers, _A System of International Comparisons of Gross Product and Purchasing Power_ (Baltimore: Johns Hopkins University Press, 1975); Irving B. Kravis, Alan Heston, and Robert Summers, _International Comparisons of Real Product and Purchasing Power_ (Baltimore: Johns Hopkins University Press, 1979).

[14]For an effective treatment of these problems, see Nathan Keyfitz, _Applied Mathematic Demography_ (New York: John Wiley & Sons, 1977).

[15]The actual adjustments imposed on mortality are:

$$SDA_{it} = ASMR_{it} \times ASP$$

$$\text{ADJ.CDR}_{it} = \frac{\Sigma_k \text{SDA}_{it}}{\Sigma_k \text{ASP}}$$

Where:

    k = Age
    i = Nation
    t = Time
    SDA = Standardized number of deaths by age
    ASMR = Age Specific Mortality rate (When unavailable, calculated using
        model life tables.)
    ASP = Age specific standard population (England, Wales, 1960)
    ADJ.CDR = Age standardized crude death rates

[16]The actual adjustments imposed on Birth rates are:

$$\text{ADJ.CBR}_{it} = (\text{PWP}_{it}/\text{PWSP})\text{CBR}_{it}$$

Where:

PWP_{it} = Percentage women 15-44 in national population

PWSP = Percentage women 15-44 in standard population (England, Wales,
    1960)

CBR = Crude Birth Rate

[17]The population data used are from United Nations, Trends and Prospects, 1978; the aggregate national accounts statistics are from World Bank, Socio-Economic Data Bank 1975, updated with World Tables, 1976 and 1980 (Baltimore: Johns Hopkins University Press); United Nations, National Accounts 1968; OECD, National Accounts 1960-1977, vol. II (Paris: OECD); The fiscal data used in addition to the above are IMF, Government Finance Statistics Yearbook 1980, vol. II; OECD, Revenue Statistics, passim; data from the original collection by Raja Chelliah and Margaret Kelly used in "Trends in Taxation," pp. 254-331. Most countries are also supplemented by their respective national sources. For details see the data set at ICPSR at the Center for Political Studies, University of Michigan.

[18]The economic impact is not entirely unexpected. Variations in the direction of the relationship between fertility and income levels have been already reported by Stanley Friedlander and Morris Silver, "A Quantitative Study of the Determinants of Fertility Behavior," Demography 4 (1967): 30-70; and David Heer, "Economic Development and Fertility," Demography 3 (1966): 424-444.

[19]The arguments we make here are not new; most demographers tend to make similar arguments, but disregard the political basis for such changes. Note the similarity in our argument with the powerful summary of Frank Notestein in his classic early accounting of the Demographic Transition: "The economic organization of relatively self-sufficient agrarian communities turns almost wholly upon the family, and the perpetuation of the family is the main guarantee of support and elemental security. When death rates are high, the individual's status in life tends to be that which he was born. There is,

therefore, rather little striving for advancement. Education is brief, and children begin their economic contribution early in life. In such societies, moreover, there is scant opportunity for women to achieve either economic support or personal prestige outside the roles of wife and mother, and women´s economic functions are organized in ways that are compatible with continuous childbearing," in "Economic Problems of Population Change," pp. 15-16, 8th International Conference of Agricultural Economists (1953) p. 18.

SECTION III. WORK IN PROGRESS

In this section we will describe the extensive preparations essential so that, in the future, work can be done to exploit fully the work completed to date. Reports on such initial and preparatory efforts are particularly difficult since further evaluations may reverse results, or very tentative findings may lead to important insights once additional adjustments are imposed. We wish, therefore, to stress the tentative nature of this final section that will, hopefully, be useful to us and/or others in furthering this line of inquiry. Preparations for pursuing four major lines of inquiry were completed.

USE OF POLITICAL CAPACITY INDEX AS MEASURE OF POLITICAL INSTABILITY

An important part of work in progress was the attempt to develop the use of the measures of political capacity as indicators of the stability of political systems. A number of points should be noted. Political capacity measures the viability of political structures which underlie and constrain political decisions. Political capacity is not designed to register the willingness or unwillingness of government officials to act, but rather defines the constraints within which elites act. Political capacity changes slowly. Major institutional adjustments are necessary to alter the structure of revenues and expenditures, and elites can not simply choose to alter priorities at will, but must enter into complex negotiation with competing groups to establish new revenue and expenditure patterns. It seems plausible to argue that a politically effective government can persuade or coerce competing coalitions to conform with the national priorities, while a less effective government is less able to effect such conformity. For this reason we have identified change in political capacity as an indicator of long term

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governmental stability. The conditions for instability are affected by the interrelation between levels of political capacity achieved and the change in these levels. Consider Figure 1.

We make two clear theoretical propositions from the upper right and lower left quadrants of Figure 1. When political capacity is low and falling, the government is losing the capacity to mobilize and utilize national resources to further its own policy. In general, the greater decline in political capacity, the greater the vulnerability of the government to political confrontation and disruption. Periods of stability, on the other hand, result from relatively high levels of political capacity and increases from such levels to still higher levels of political capacity. The remaining two quadrants encompass the conditions for potential stability and instability. The movement towards stability associated with increases in political capacity in the upper left quadrant can be thwarted because the overall power of the governing coalition is still very weak, and competing coalitions may dominate the political arena. On the other hand, when the level of political capacity is high to start with, but declines, as illustrated by the lower right quadrant, the rate of the loss will be instrumental in the potential level of instability. Finally, little change in the political capacity level, defined by the area contained in the center of Figure 1, is a good indicator of relative stability even when political capacity is low because the competing coalitions are not challenging the regime in power and forcing either a decline in capacity or an improvement in performance.

Empirical evaluations, thus far, are confined to the analysis of rapid change in political capacity contained in the lower left quadrant of chronic instability. We expect that under these conditions, the strongest indicators of instability will emerge; thus we purposefully chose cases with well

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Figure 1. Theoretical Relationship Between Levels and Rates of
Political Capacity and Internal Instability

documented periods of domestic instability to ascertain if this aspect of our formulations was correct. Had they failed, the general logic of the inquiry would be questioned, since little utility can be gained from the analysis of marginal inferences when the core predictions fail to materialize. The empirical evidence analyzed thus far supports the contention that three years of continuous decline in political capacity is an effective indicator of governmental vulnerability. In the six cases chosen - Brazil, Chile, Iran, Afghanistan, Korea, and Indonesia - sustained declines in political capacity preceding major political upheavals by three years, and the speed of decline was correlated with the intensity of political violence. A summary of these findings has been delivered to CTO at DARPA as part of the computer demonstration model.

POLITICAL CAPACITY MEASURES AND POLITICAL DEVELOPMENT AND DECAY

The measures of political capacity have led us also to explore another problem in the field of forecasting. It has been assumed from the very beginning that economic and social modernization might, if political development did not keep pace, result in violence and political instability and decay. This concept became a major proposition in the field and was widely believed. The measures of political capacity have permitted us to test this proposition. Indeed, it allowed us to offer an opposite hypothesis, i.e. that it was not economic development and social modernization that were the cause of instability, but that, on the contrary, it may be the expansion of the state structure (which constitutes, in the last analysis, the core of the process of "political development,") that is a, or even the, major source of violence. If this proposition were true then much (though certainly not all) of the violence now present in the developing world, which have always been interpreted to signal decay of the political systems in question, might

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signal the very opposite. In other words, a large number of cases of violence may indicate the development of the political system, not its decay. This proposition was explored at some length in the paper which appears in Appendix 4. It should be noted that the results of this research need extensive and repeated confirmation by independent research before being considered definitive. It is clear, however, that the hypothesis discussed here demands pursuit for the implications stemming from any demonstration of its validity are massive for both policy and research.

POLITICAL CAPACITY, POPULAR SUPPORT AND GOVERNMENTAL EFFECTIVENESS

Another application of political capacity that has been only initially explored, evaluates the connection between measures of political capacity and electoral support. We explored whether the aggregate measure of political capacity should reflect the movement of behavioral support indicators. Specifically, we expected that levels of political participation, support for governments, and approval of governmental performance would, in democracies, vary systematically with the measures of aggregate performance. In short, the proposition we wished to test was whether and to what extent the fluctuations in support for government affect the capacity or effectiveness of government operations.

In order to carry out the proposed work, we gathered a substantial amount of national election data over time for many of the OECD countries. Political attitude data was chosen because it provided the best micro political view on actual change of population attitudes towards the government. The exploration of time series attitudes is today possible only because during the last twenty-five years, academic organizations throughout the Western nations have surveyed their populations with increasing regularity and consistency. Much of the work was done at the Institute for Social Research which has housed the

National Estimates project from its inception. This institution, along with other research organizations, has spent massive resources over the years collecting the series of data that give evidence of the ebb and flow of political attitudes. Overall there are 119 studies which have been constructed into the opinion file. After the samples are standardized, a total of 238,000 respondents compose the total cross-national and cross-temporal file. While the data are abundant in the late 1960s and 1970s, the amount of data for the first quinquennium of the sixties and earlier are inevitably more meager, but even so, there are 34,000 respondents across the nations sampled for the period prior to 1963.

In part, the construction of this file was a process of selecting similar items and standardizing their coding. The actual coding, however, of the individual variables was done study by study to establish a standard code for each of the individual items. In the mass attitude files of many of the surveyed nations, there was need to experiment to determine the reliability and empirical meaning of the selected variables. For example, when respondents in West Germany say that they are absolutely sure of their vote intention, it had to be determined whether such a response also represents a valid surrogate measure of the respondent's strength of party attachment and loyalty. We found that, in Western European countries, the United States, Canada, Japan, and Australia, such an inference can be made on the basis of statistically strong relationships between psychological attachment and assuredness of the vote, and can therefore construct general micro-measures of political behavior. This process was carried out for each of the critical long-term variables of political support for each of the nations included in the opinion survey file. To date, this process has been completed for fifteen nations: France, West Germany, Italy, Great Britain, Canada, the United

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States, Belgium, the Netherlands, Luxembourg, Ireland, Denmark, Sweden, Japan, Switzerland, and Norway.

After the individual surveys have been recoded, the sample was standardized and finally the surveys were "pooled" over time and concatenated into the cross-national support file. In this form they are directly compatible with other collections in this project.

Standardizing the survey sample was a two-fold process. Since many of the surveys were conducted for specific investigations, considerable care was taken to insure that they were accurate samples of the studied populations. Data sets collected by academic institutions, even when carefully constructed and checked, are often not conducted with mapping of a population over time. In some studies, segments of the population were targeted for special analysis in an effort to determine their unique contribution to the national scene. At other times, the sampling techniques were improved upon and adopted in the monitoring of the population. Moreover, early samples are often not adjusted to take into account biases found later on. Thus, when the studies were pooled over time, special attention was paid retrospectively to determine the accuracy of the historical record of public opinion. Studies sometimes had to be dropped and at other times adjusted by new sample weights to insure a valid mapping of society. Much like the building of comparable items, this process required examining and adjusting each study within and across nations. Finally, after the studies were made comparable, they were pooled into a single file. In this data file, the surveys are weighted up or down to 2,000 cases. Separate time points, however, have been retained as "subfiles" for single country analysis. (See the Sourcebook for the Cross-National Survey Data Set, July 1979, for exact documentation.)

From this massive data set, we were able to aggregate three key political variables that reflect the levels of support involvement and participation of the population in mass politics. The first measure is psychological involvement. This index combines interest in politics, interest in recent or current election campaigns, amount of discussion of politics, attempts to influence others politically, and attention to mass media for political information. Each of the variables have been divided by their maximum score to produce a consistent index that ranges from zero to one. The second measure reflects the strength of party identification. In this index, we combine the presence of expressed party loyalty with the degree of attachment to the party. Again the range is between zero and one; the highest score is achieved by respondents witn clear and consistent preferences and attachments determined by past performance. The lowest measure is attained by individuals who have no party attachment whjle participating in politics and those who fail to express persistent intentions in support for consistent policy positions. The third and final measure approximates political participation by gauging the active behavior and involvement of respondents in politics. The scale is composed of four distinct questions - aspects of participation; the simple act of voting; voting recall from past elections, when applicable, given the age of the respondent; the attendance to political meetings and participation in other forms of political activity. The programs utilized in the construction of these variables are fully detailed in a matching readable codebook developed for the summary data set (see Appendix 5).

Preliminary results from these data are consistent with our expectations. Consider the following simple relationship drawn on the basis of six countries fully standardized in Table 1 below.

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TABLE 1. CORRELATION OF POLITICAL CAPACITY WITH POLITICAL BEHAVIOR MEASURES

	Psychological Involvement	Participation	Party 1D
Political Capacity	.41	.15	.37
Cases	(60)	(63)	(53)

There is a clear, consistent, and positive association between political capacity and the behavioral measures of political participation. This is an important finding, since the measure of political capacity is independent of economic performance and directly reflects the relationship between governmental performance and the perception of voters of that performance. The associations give evidence that the voting patterns of the population are directly associated with the actual performance of the government, and that the perceptions of such performance are in line with reality.

In addition to these results, we considered the contribution of all three political behavior variables concurrently on the political capacity indicator. The overall variance explained is approximately twenty percent (R^2: .19), but more importantly, the analysis of individual countries, despite the limitation of cases available, is reassuring; using concurrently the three variables in simple regression models we obtain the following levels of association: US – R^2: .93, n: 11; US – R^2: .55, n: 11; Germany – R^2: .45, n: 15; Sweden – R^2: .33, n: 10; Italy – R^2: .09, n: 9.

We have only reported levels of association because these results are too tentative for a meaningful evaluation of coefficients, but these are consistent with expectations. Notice that the relationship between political capacity and the three behavioral indicators reflects how popular support and the "strength" of democratic institutions influence one another in the Western

world. The United States and England have the strongest relationship between political performance and voter attitudes; Germany and Sweden (somewhat surprisingly) hold the middle ground, and Italy, whose democratic system one expects to be the weakest, shows the lowest rate of response between political performance and attitudes towards the political system. It should be clear that from the R^2 it is impossible to specify actual levels of each component in the relation -- strength of institutions or popular support.

Even these very preliminary results indicate that an important and independent relationship exists between political performance and the political attitude of the electorate towards government. The evidence provides tentative support for the proposition that voters follow a predictable, rational course, rewarding the government for effective performance. From our more aggregate perspective, these tests, if they hold up under further scrutiny, are invaluable. They would have established for the first time a direct link between political performance and political attitudes which are, as we have shown, clear and independent of economic performance. Most importantly, these results would have established that the measure of political capacity is related in a theoretically anticipated way with political behavior in peacetime, performs quite effectively outside of the developing world, and measures political effects in the absence of conflict.

THE EXTENSION OF MEASURES OF POLITICAL CAPACITY
TO COMMUNIST POLITICO ECONOMIC SYSTEMS

In the final portion of this section, we wish to describe the status of the work on Centralized economies which absorbed so much of our time. This is considered by the principal investigators to be the most important and the most urgent task to continue. The task of gathering the raw data for the

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Eastern European countries and the Soviet Union was turned over to Dr. K. Badach, an econometrician from Poland who was identified by Dr. Thaddeus Alton, Director of the National Income project, for this job. The work was performed at the facilities of the National Income Project in New York which is reputed, with good reason, to be the best facility for the research of economic data of Eastern Europe.

The data we asked Dr. Badach to collect consisted of appropriate breakdowns of national accounts, revenue and expenditure figures similar to those we had established for the open economies. We were fully aware, of course, that some of the information for the Communist world we were seeking was not available under the categories specified and collected thus far. The task we undertook was to find the equivalent of the breakdowns we had used for the highly centralized systems in their own terms. To achieve this objective, Dr. Badach was given the assignment of collecting each component in the most detailed breakdown available, and then we would evaluate how to reaggregate each element to match the standard Western definition. Because of this approach, the collection of Eastern European data was very wide in its coverage and contained many more details than those we had attempted to gather in the Western economies.

A very summary, aggregated indication of what is available, is included in Appendix 6.

This data set is available only on coding sheets. It has not been standardized in any form, except for the data for the Soviet Union that was used in the historical evaluations in section I. The most regretful aspect of this portion of the project is that for the first time, the community of interested scholars and policy makers would have had a consistent set of indicators on both national account and fiscal structures that is simply

missing today. Recovery of the data in its present form requires substantial work. The passage of time and the inability to continue supporting Dr. Badach, whose familiarity with the collection makes him an indispensable element in the standardization process, leads us to the unfortunate conclusion that much of this effort may be simply wasted. This loss is important for practical reasons as well. The indicators we hoped to construct would have been of substantial value for the evaluation of likely activity and outcomes of future political challenges in the Eastern European region and could have aided in the formulation of policy towards this area.

APPENDIX 1:   DATA SOURCES

TAXATION AND BORROWING

Austria-Hungary. 1914: Oesterreiches Statistiches Handbuch, 1916. Taxation includes direct taxes, customs duties, excise taxes, and profits from fiscal monopolies.

Czechoslovakia. 1930-1937: Statistical Bulletin of Czechoslovakia, various editions. Taxation includes direct taxes, turnover taxes, customs duties, excise taxes, other duties, and profits from government monopolies.

Finland. 1919-1950: Suomen Tilastollinen Vuosikirja, various editions. Taxation includes direct taxes, excise taxes, customs duties, and other duties.

France. 1900-1960: Annuaire Statistique de la France, 1966, Resume Retrospectif. Taxation includes income taxes, taxes on various yields, turnover taxes, customs duties, excise taxes, other duties, and profits from government monopolies.

Germany. 1900-1913: Statistiches Jahrbuch des Deutsches Reich, various editions. Taxation includes inheritance taxes, customs duties, other duties, excise taxes, and profits from fiscal monopolies. 1914-1918: Konrad Roesler, Die Finanzpolitik des Deutschen Reiches im Ersten Weltkrieg (Berlin: Duncker and Humblot, 1965). 1925-1938: Bevoelkerung und Wirtschaft, 1872-1972. 1939-1944: Statistical Yearbook of the League of Nations, 1944. 1946-1960: Bevoelkerung und Wirtschaft, 1872-1972.

Greece. 1928-1939: Annuaire Statistique de la Grece, various editions. Taxation includes direct taxes, indirect taxes, profits from fiscal and government monopolies, and other duties.

Italy. 1900-1960: P. Ercolini, "Documentazione statistica di base," in Fua (ed.) Lo Sviluppo Economico in Italia Vol. 3 (Milan: Angeli, 1969).

Japan. 1900-1960: Kazushi Ohkawa and Miyohei Shinohara (eds.), Patterns of Japanese Economic Development (New Haven: Yale University Press, 1979).

Netherlands. 1900-1960: Zeventig Jaren Statistiek in Tijdreeksen, 1899-1969.

Poland. 1922-1938: Concise Statistical Yearbook of Poland, various editions. Taxation includes direct and indirect taxes, customs duties, stamp and property taxes, and profits from government monopolies.

Russia/USSR. 1900-1917: M. Bogolepov, "The Financial System of Pre-War Russia," in Sokolnikov (ed.), Soviet Policy in Public Finance (Stanford: Stanford University Press, 1931). 1918-1928: R.W. Davies, The Development of the Soviet Budgetary System (Cambridge: University Press, 1958). 1929-1953: Franklyn D. Holzman, Soviet Taxation (Cambridge: Harvard University Press, 1955).

Sweden. 1900-1960: Statistik Arsbok for Sverige, various editions. Taxation includes income and property taxes, taxes on various yields, head tax, other direct taxes, excise taxes, customs duties, other duties, and other taxes.

United Kingdom. 1900-1939: Brian R. Mitchell and Phyllis Deane, Abstract of British Historical Statistics (Cambridge: Cambridge University Press, 1962). 1940-1960: Brian R. Mitchell and H. G. Jones, Second Abstract of British Historical Statistics (Cambridge: Cambridge University Press, 1971). Taxation includes income taxes, inheritance taxes, land tax, excise taxes, customs and other duties.

United States. 1900-1960: U.S. Historical Statistics Since Colonial Times.

GROSS NATIONAL PRODUCT in Market Prices

Austria-Hungary. 1914: Estimate taken for National Income in market prices from Colin Clark, Conditions of Economic Progress (London: MacMillan, 1960), and multiplied by seven percent to obtain GNP in market prices, following Paul Bairoch, "Estimations du Revenu National," Revue Economique 38/2 (March, 1977).

Czechoslovakia. 1930-1937: GDP in current and constant market prices taken from Frederic Pryor, et al.,"Czechoslovak Aggregate Production in the Interwar Period," Review of Income and Wealth (1971).

Finland. 1926-1947: Net National Product at current market prices from United Nations, National Income Statistics, 1938-1948 (1950). Constant prices taken B.R. Mitchell, European Historical Statistics, 1750-1970 (New York: Columbia University Press, 1975). Converted to GNP by ratio of NNP to GNP in 1948. 1948-1960: United Nations, Yearbook of National Accounts Statistics, various editions.

France. 1900-1913, 1920-1938: GDP at constant factor cost from J-C. Toutain, Le Produit Interieur Brut de la France de 1889 a 1970 (forthcoming). Converted to current prices with the use of the price deflator reported in Christine Andre and Robert Delorme, "Long-Run Growth of Public Expenditure in France," Public Finance 33/1 (1978). Multiplied by twelve percent to estimate GNP in market prices (see Bairoch, "Estimations du Revenu National"). 1914-1919, 1939-1940: GNP in constant prices estimated with the use of the index of total output supplied by Angus Maddison, "Phases of Capitalist Development," Banca Nazionale del Lavoro Quarterly Review, 121 (June, 1977). Converted to current prices with the use of the wholesale price index reported in B.R. Mitchell, European Historical Statistics. 1947-1960: Annuaire Statistique de la France, 1966, Resume Retrospectif.

Germany. 1900-1913: Net Domestic Product in current and constant factor cost from Walther G. Hoffmann, Das Wachstum der Deutschen Wirtschaft (Berlin: Springer, 1965). GNP in market prices estimated by multiplying by twelve percent (see Bairoch, "Estimations du Revenu National"). 1914-1918: National Income at constant factor cost and multiplied by a wholesale price index ("Grosshandelspreise") to produce current prices taken from

Petzina, Abelshauser and Faust, Sozialgeschichtliches Arbeitsbuch, Band III (Munich: Beck, 1977). 1925-1937, 1950-1960: GNP in constant and current market prices from Bevoelkerung und Wirtschaft, 1872-1970. 1938-1944: GNP in current market prices (including Austria and annexed portions of Czechoslovakia) from B.A. Carroll, Design for Total War (The Hague, 1968). GNP in constant market prices from U.S. Strategic Bombing Survey, Gross National Product of Germany.

Greece. 1929-1939: Net National Product in market prices from United Nations, National Income Statistics (1950). Multiplied by seven percent to produce GNP in market prices (see Bairoch, "Estimations du Revenu National").

Italy. 1900-1960: GNP in current and constant market prices from P. Ercolani, "Documentazione statistica di base," in Fua (ed.) Lo Sviluppo Economico in Italia Vol. 3 (Milan: Angeli, 1969).

Japan. 1900-1960: GNP in current and constant market prices from Kazushi Ohkawa and Miyohei Shinohara (eds..) Patterns of Japanese Economic Development (New Haven: Yale University Press, 1979).

Netherlands. 1900-1960: GNP in current and constant market prices from Zeventig Jaren Statistiek in Tijdreeksen, 1899-1969.

Poland. 1922-1938: Estimates of Polish GNP in 1960 U.S. dollars for 1929, 1935 and 1938 were taken from Paul Bairoch, "Europe's Gross National Product: 1800-1975," Journal of European Economic History 5/2 (Fall, 1976). Remaining years were estimated with an ordinary least squares model using total wheat production (from Mitchell, European Historical Statistics) and an index of industrial production from Hilgerdt, Industrialization and World Trade (Geneva: League of Nations, 1948). These index numbers were then used to estimate GNP in constant 1929 zlotys using the figure for 1929 shown in United Nations, National Income Statistics (1950). GNP in current market prices were estimated by using a wholesale price index shown in various editions of Concise Statistical Yearbook for Poland.

Russia/USSR. 1900-1928: An index for GNP in constant market prices based on weighted shares of indices of industrial and agricultural production was supplied by Paul Bairoch of the University of Geneva. This index was used in Bairoch, "Europe's Gross National Product," Journal of European Economic History 5/3 (Fall, 1976). GNP in current prices were estimated using the wholesale price index shown in Mitchell, European Historical Statistics. 1929-1953: GNP in current and constant market prices from R. Moorsteen and R.P. Powell, The Soviet Capital Stock, 1928-1962 (Homewood, Ill,1966).

Sweden. 1900-1960: GNP in current and constant market prices from O. Johansson, The Gross Domestic Product of Sweden and its Composition (Stockholm, 1967).

United Kingdom. 1900-1960: GNP in current and constant prices taken from C.H. Feinstein, National Income Expenditure and Output of the United Kingdom, 1855-1965 (Cambridge: Cambridge University Press, 1972).

United States. 1900-1960: GNP in current and constant prices taken U.S. Historical Statistics Since Colonial Times.

GNP PER CAPITA

Gross National Product in constant 1960 U.S. dollars were derived using indices constructed from GNP in constant prices as discussed above. These indices were used to extend GNP in 1960 U.S. dollars using the base years 1913, 1929, and 1950 to account for changes in territory. The figures used were kindly supplied by Professor Paul Bairoch of the University of Geneva. The data are recent updates of the figures used in "Europe's Gross National Product, 1800-1975," Journal of European Economic History 5/2 (Fall, 1976).

Population data for each year was estimated from the census data shown in B.R. Mitchell, European Historical Statistics, 1750-1970 (New York: Columbia University Press, 1975).

CENTRAL GOVERNMENT EXPENDITURE AS A PERCENT OF TOTAL GOVERNMENT SPENDING

These figures were extrapolated from peacetime trends for the war years 1914-1918 and 1939-1945. The data were taken from the sources listed for data on taxation and borrowing with the following exceptions:

Austria-Hungary. An estimate of sixty percent was used for the share of Reich, Austrian, and Hungarian expenditure of general government spending.

France. Christine Andre and Robert Delorme, "Long-Run Growth of Public Expenditure in France," Public Finance 33/1 (1978).

Germany. Stephan Andic and Jindrich Veverka, "The Growth of Public Expenditure in Germany since the Unification," Finanz Archiv 23/2 (January, 1964).

Italy. An estimate of eighty percent was used for the entire period, although it is the approximate share for the 1950s, as shown in various editions of Annuario Statistico Italiano.

Japan. Long-Term Economic Statistics, Vol. 7.

United Kingdom. Alan T. Peacock and Jack Wiseman, _The Growth of Public Expenditure in the United Kingdom_ (Princeton: Princeton University Press, 1961).

APPENDIX 2:   EFFORT OF WARTIME PARTNERS

The allocations of effort are constructed from a variety of sources containing abundant, though largely unstandardized data. The criterion utilized was the deployment of infantry and armor divisions on different fronts as a proportion of the total number of divisions available to each actor.

In World War 1, Germany had the following distribution of troops. In 1914, 83.4 infantry divisions were deployed on the Western front while only 13 were allocated to the Eastern front (Liddell Hart, 1930: 55; Stone, 1975: 55). In 1915, approximately 100 divisions remained in the Western front and the Eastern front the strength was built up to 41. (Stone: 112; Liddell Hart: 472). In 1916, German strength was increased on both fronts, with the Western rising to 120 divisions, and the Eastern to its height of 47.5 (Stone: 93). This ratio remained relatively stable until the collapse of Russian resistance. In late 1917, and up until May 1918, Germany concentrated its divisions on the Western front, increasing their number from 124 to a maximum of 208 (Edmonds, 1951: 276,317). The estimate for Germany's effort on the Western front in late 1917 is then approximately 100 percent.

In World War II, Germany was fully committed to the Western front and had 134 divisions concentrated on that theatre until June 1941 (Cooper, 1978: 270). In June 1941, 152 out of a total of 205 deployed German divisions were active in the Eastern front (Young: 118). In 1943, Germany increased its strength to 186 divisions on the Eastern front, retaining 51 for the Western front (Cooper, 1978: 495). In 1944, largely due to battle losses but also to some reallocation of strength, 164 divisions remained in the Eastern front while strength in the Western was increased to 108 divisions (USMA History

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Department, 1970: 107). In 1945, 70 divisions remained in the West and an unknown number in the East (USMA History Department: 166).

The allocation of British effort in World War I was complicated by the number of troops deployed throughout the Empire. We used the number of British Expeditionary Force soldiers in the Western front in relation to the total number of British soldiers deployed overseas.

In December 1914, 11,600 British soldiers of a total of over one million men were deployed in the Western front. This small proportion does not reflect the total effort of Britain, which was in the process of mobilization, so we assigned a rather arbitrary 50 percent of the effort despite the lack of actual delivery. During the rest of the Great War, the percentage of BEF troops deployed in the Western front of the total deployed was:

British Troops on the Western Front

1915	76
1916	76
1917	75.5
1918	75.2

These percentages are based on deployed troops and do not include the approximately one million men that remained in England. Inclusion of these troops would reduce this percentage to below 70 percent. However, since the majority saw combat in France it seemed correct to take a middle road and use 75 percent as a fair approximation of total effort. (War Office, 1922). During World War II, 1940 was the only year in which Britain was a partner. The British deployed about 10 divisions in France before their operations were devastated at Dunkirk. At the time, Britain had approximately 20 division equivalents, but most of these were deployed in the colonies. Due to lack of mobilization, these numbers are far below those Britain would eventually use. We settled on a very soft 40 percent for 1940.

The intervention of the United States in World War I is the most difficult effort to estimate for the war since the direct danger to the United States was limited and the amount of effort relied not on total mobilization but on voluntary action. In 1918, 53.1 percent of all US army troops were in Europe and 71.4 percent of all combat troops had been assigned to the Western front. The total size of the army approached 2,000,000 men and was clearly below the levels mobilized by Britain, France or Germany. It is difficult in the absence of a total commitment to estimate actual effort. Still, we estimated that during 1917, the United States contributed 25 percent of its resources to the war and increased this total to 50 percent by 1918.

In World War II the picture is much clearer. The attack on Pearl Harbor assured US commitment in response to a direct threat. We therefore simply divided the effort made in the Far East against Japan from the effort in Europe. The allocation of manpower to the two fronts was as follows:

Manpower in Thousands

	Far East	West
1942	46	49
1943	913	1479
1944	1315	2874
1945	1811	3858

We utilized these numbers as a probable indicator of allocations in the two fronts. The defeat of Germany of course increases the pressure on Japan, but the overwhelming disparity in resources makes such changes moot (Matloff, 1959: 555).

The allocations of Austria-Hungary in World War I and of Italy in World War II are approximated by the number of armies deployed rather than the

manpower, since the latter was unavailable. The estimates are based on the West Point Atlas. (Esposito, 1958)

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The War Office. Statistics of the Military Effort of the British Empire during the Great War 1914-1920. London: HMSO, 1922.

Young, Peter. World War 1939-45. London: Barker, 1966.

APPENDIX 3: List of Countries Included in the Sample

UNDERDEVELOPED

Total: 726 Cases

Country	# Cases	Dates
Angola	17	1955-1963 1967-1974
*Bolivia	3	1957-1959
*Brazil	5	1953-1957
Burma	23	1953-1975
Burundi	16	1960-1975
Cameroon	16	1960-1975
Central African Rep.	16	1960-1975
Chad	16	1960-1975
*Colombia	3	1957-1959
*Dominican Republic	4	1953,1955-56, 1965
*Ecuador	1	1959
Egypt	23	1953-1975
*El Salvador	10	1953-61, 1963
Ethiopia	20	1956-1975
Gabon	16	1960-1975
*Ghana	16	1955-1959 1965-1975
Honduras	23	1953-1975
India	23	1953-1975
*Iran	3	1953-1955
*Jordan	1	1960

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Kenya	23	1953-1975
Lemotho	12	1964-1975
Liberia	16	1960-1975
Malagasy Republic	16	1960-1975
Malawi	16	1960-1975
Mauritania	16	1960-1975
Morocco	16	1960-1975
Mozambique	16	1960-1975
Nepal	16	1960-1975
Niger	16	1960-1975
Nigeria	23	1953-1975
Pakistan	11	1965-1975
Papua New Guinea	15	1961-1975
Philippines	23	1953-1975
*Republic of China	7	1953-1959
*Republic of Korea	16	1955-1970
Rwanda	16	1960-1975
*Senegal	7	1966-1967 1969-1973
Sierra Leone	12	1964-1975
Somalia	16	1960-1975
Sri Lanka	23	1953-1975
Sudan	21	1955-1975
Tanzania	16	1960-1975
Thailand	23	1953-1975
Togo	16	1960-1975
Uganda	21	1955-1975
Upper Volta	12	1962-1973

Country	# Cases	Dates
Zaire	17	1953-1956 1963-1975
*Zambia	13	1955-1960 1962-1964 1972-1975

DEVELOPING

TOTAL: 729 Cases

Country	# Cases	Dates
Algeria	16	1955, 1959-60 1963-1975
*Bolivia	18	1955-1956 1960-1975
*Brazil	18	1958-1975
Chile	23	1953-1975
*Colombia	20	1953-1956 1960-1975
Congo	16	1960-1975
Costa Rica	21	1955-1975
*Dominican Republic	19	1954, 1957-64 1966-1975
*Ecuador	22	1953-1958 1960-1975
*El Salvador	13	1962, 1964-75
Greece	23	1953-1975
*Ghana	5	1960-1964
Guatemala	21	1953-1973
Iraq	23	1953-1975
*Iran	20	1956-1975
Israel	23	1953-1975
Ivory Coast	16	1960-1975

Jamaica	23	1953-1975
*Jordan	15	1961-1975
Libya	13	1963-1975
Malaysia	21	1955-1975
Mexico	16	1960-1975
Nicaragua	16	1960-1975
Panama	23	1953-1975
Paraguay	21	1955-1975
Peru	23	1953-1975
Portugal	23	1953-1975
Puerto Rico	7	1960, 1965, 1970, 1972-75
*Republic of China	14	1960-1973
*Republic of Korea	5	1971-1975
Saudi Arabia	16	1960-1975
*Senegal	4	1963-65, 1968
South Africa	23	1953-1975
Spain	21	1955-1975
Syria	21	1955-1975
Trinidad & Tobago	23	1953-1975
Tunisia	14	1960-1973
Turkey	23	1953-1975
Uruguay	23	1953-1975
Venezuela	16	1960-1975
*Zambia	8	1961, 1965-71

DEVELOPED

Total: 413 Cases

Country	# Cases	Dates
Australia	23	1953-1975
Austria	23	1953-1975
Belgium	23	1953-1975
Canada	23	1953-1975
Denmark	23	1953-1975
Finland	23	1953-1975
France	23	1953-1975
Germany	23	1953-1975
Ireland	23	1953-1975
Italy	23	1953-1975
Japan	23	1953-1975
Netherlands	23	1953-1975
New Zealand	22	1953-1974
Norway	23	1953-1975
Sweden	23	1953-1975
Switzerland	23	1953-1975
UK	23	1953-1975
USA	23	1953-1975

* Country represented in both the Underdeveloped and Developing groups.

APPENDIX 4: THE PARADOXICAL NATURE OF STATE-MAKING:

THE VIOLENT CREATION OF ORDER[*]

The decisive means for politics is violence... Anyone who fails to see

this is, indeed, a political infant.

Max Weber

Order or Decay?

It was not all that long ago when writers on political modernization were

optimistically postulating the existence of a positive, reinforcing

relationship between economic growth and the emergence of stable, orderly

polities in the developing world. Soon, however, this optimistic equation

gave way before the intractable reality of increasing rather than decreasing

levels of collective violence and political instability in the Third World.

Theorists of political development began to modify and reorient their

arguments. Now, rapid socioeconomic change was seen as a breeding ground of

discontent, conflict, violence, and political instability. The obvious

reality of violence and instability in Third World countries was taken to

indicate that instead of developing, these states were, in fact, experiencing

political decay.[20]

This reevaluation of the prospects for political development in the Third

World shifted the focus of developmental studies away from the dynamics of

socioeconomic change and towards questions about the specifically political

conditions for order and stability. The argument advanced was that if new

states were to develop the capacity to check the violence and instability

inherent in socioeconomic modernization then they had to become

differentiated, autonomous, centralized organizations with control over

sufficient power resources to enable them to enforce order. That is, the more

these states increased their degree of "stateness" the less violence and

disorder they would experience. In this view, state-making is associated with political order and an incapacity to develop state power with violence and political decay. This argument sounds convincing enough. Actually, it is seriously flawed.

By categorically juxtaposing order and decay and interpreting increases in collective violence as solely indicative of movement toward the latter, the argument seriously misrepresents the historical process of state-making. If political scientists who accepted this theory were to look at sixteenth and seventeenth century European history, they would no doubt conclude that the whole continent was caught in the grips of a process of political decay. The conclusion would not, of course, be entirely false, but neither would it be entirely true. For beneath the surface of violence, revolt, rebellion, war, and instability, something quite different from political decay was occurring. These were, after all, the centuries during which the proto-national states of Europe were decisively accumulating, centralizing, and concentrating the power resources necessary for effective territorial domination.[21]

It was a period of primitive central state power accumulation which continued well into the twentieth century. The entire historical process of creating a national state was a long and violent struggle pitting the agents of state centralization against myriad local and regional opponents. Monarchs, princes, lords, bishops, municipal oligarchs, and regional parliaments recurrently and violently confronted one another in a struggle for control over the means of administration and coercion. Peasants and artisans, solidly based in their respective communities, were increasingly mobilized into the fray, sometimes as allies of one or another of the "elite" contenders and sometimes as independent actors resisting the extractions of the proto-states and/or their opponents. As centralizing, war-making state builders

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increased their resource demands on their populations, the tax, food, and conscription riot often became the harbinger of much larger rebellions pitting nobles and peasants against the monarchical agents of national state centralization. By 1900 there were around twenty times fewer independent polities in Europe than there had been in 1500. They did not disappear peacefully or decay as the national state developed; they were the losers in a protracted war of all against all.

Many of the new states of today are engaged in struggles whose logic is similar to that of the European period of primitive central state power accumulation. The protracted conflicts between centralists and federalists in Mexico, between Java and the Outer Islands in Indonesia, and the linguistic and secessionist struggles of India all evidence antagonisms between central state-makers and subnational collectivities. The theoretical language of "cleavages" -- ethnic, religious, tribal -- tends to obscure their intimate connection with competitive political conflicts for control over the power resources of the respective territories and populations. Increasing central state claims for resources -- for the material means of state-making and domination -- intrude into and compete with preexisting structures of rights and obligations which tie those resources to subnational collectivities and/or "polities." Conflict, resistance, and violence are, as they were in Europe, often the result.[22]

Our argument is not that the specific actors, patterns and modalities of conflict in new states, or their outcomes are the same as they were in Europe. The fact that the European national state system did emerge and that the new states now occupy distinct positions within a developed capitalist world economy are enough to insure that this is unlikely. Nor are we contending that conflict and violence in the Third World can be reduced to

struggles over the concentration and centralization of state power. The only point we are stressing is that a significant amount of the political violence in new states is a function of the conflicts inherent in the process of primitive central state power accumulation. But if this is true, how is it possible singularly and unambiguously to interpret collective violence as indicative of political decay?

The fact is that collective political violence, in and of itself, indicates neither order nor decay. To equate increasing violence with increasing political decay is to adopt an undialectical, historically inaccurate conception of the process of national state making. National state making is a historical process characterized by the creation of political order at a new spatial and institutional level. It involves the redistribution of the political control of power resources away from subnational collectivities and polities toward the central state apparatus. Historically, this centralization of power resources is a violent process which, if successful, leads to the creation of "order" at a new, more expanded level. In this case, then, violence can be seen as indicating a progression toward a political order of a qualitatively different kind rather than as political decay. The task is, therefore, one of correctly interpreting the significance of collective violence in the new states. The question we are posing in this paper is in what ways and to what extent is the collective violence in new states a reflection or tracer of the process of national state-making and consolidation?

State-Making and Violence in New States

There is no systematic comparative study of state-making in new states. The available relevant information is spread over a multitude of case studies which do not have the process of centralization as their major focus. The

little information we have, however, shows that the march toward the centralization of power continued implacably in a number of the recently independent states. We know that the leaders of independence were deeply committed to the economic growth and political aggrandizement of their countries, and thus sought to expand the power of the state apparatus inherited from the colonizers. We also know that the building of an administrative apparatus that could penetrate more deeply into the national territory, and of the repressive apparatus necessary to back it up, required a continuously expanding extraction of resources from the population. Such extraction, of course, not only perpetuated the old conflicts of the colonial state but also generated new ones.

Newly established states are likely both to exacerbate old conflicts and to create new ones by financing the expansion of the state apparatus through increases in the tax burden on the major producers of agrarian societies: the peasants. It is well known that the major driving force behind peasant involvement in the wars of independence was their anger at the immense tax burdens imposed by colonial regimes. Peasants expected to rid themselves of taxes as soon as foreign rulers left. Their hopes were, however, cruelly betrayed by the native rulers who replaced colonial despots. The imperatives of national aggrandizement required resources. Javanese peasants who wanted to "kill the Dutch because they impose[d] taxes" (Scott, 1976, p. 91) were soon to realize they had to kill their "liberators" to free themselves from taxes. Peasants fought back in the same way they had fought colonial states, and for much the same reason they had fought state-makers in seventeenth-century Europe. In the same way as European peasant communities resisted the king's officials, often led by the landed aristocracy, the villagers of the new states united against governmental claims, this time mostly under the

guidance and protection of communist parties or other movements engaged in struggles with the central government.

In talking about India in the late fifties, Myron Weiner notes that one of the things uniting villagers was opposition to government orders they perceived as unjust. Weiner's explanation (1962, p. 146) of how the anger of the rural population at the extractive incursions of the state is linked to the national political struggle illustrates the pattern of conflict we have laid out above:

In fact, this capacity to unite in relation to the outside world is increasingly being tapped by political parties during general elections that cut across villages. In elections for state legislative assemblies and for the national Parliament, virtually all parties, including the Communists, emphasize those issues which appeal to villages as villages. Thus the Congress Party stresses the beneficial effect of its community development programs, of local irrigation works, new schools, new roads, and other rural improvements. The opposition parties criticize the government for high taxes, high food prices, for inefficient programs of grain procurement, for administrative corruption, and for lack of adequate credit facilities, irrigation works, or schools. In West Bengal, as elsewhere, rural demands are increasingly directed at the government not against groups within the rural community. While leftist attacks on zamidar's, jagirdar's, and other types of landlords were common in the 1952 elections, the legal abolition of the landlord system in most states between the 1952 and 1957 elections eliminated this important class-struggle issue.

There are, of course, critical differences between the collective action of Asian villagers today and that of European peasants in the eighteenth

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century. But these differences should not be exaggerated. Almost echoing Weiner's remark is Rude's statement about seventeenth- and eighteenth-century European peasants (1980, pp. 54-55):

> ...the more common feature of peasant revolt in the "age of absolutism" was the challenge to state or monarch over the payment of taxes rather than to the seigneur overdues and obligations, or even over personal servitude.

One of the crucial differences between peasant resistance in new states and that in early modern Europe is that the former are more integrated into national power struggles. While the European aristocracy often took the lead in peasant resistance against the Crown, such resistance remained predominantly local.[23] In new states, however, parties and groups competing at the national level integrate local resistance into national conflicts. Thus, while peasant resistance to state expansion is universal, the political and organizational character of the powerful allies of the peasantry changes.[24] But, whatever the differences in the character of these allies may be, state expansion will always provide sufficient reasons for resistance to a number of local centers of power. As the centralizing and expansionist action of the French Crown of the seventeenth century provoked a violent reaction from the aristocracy, and that of the English Crown from the gentry and the Parliament, the same sort of action unleashes much violence against the central government in new states.

In trying to expand their power, the governments of new states may threaten or displease other centers of power in a number of ways. They may do so simply by failing to retribute favors, thereby having to face retaliation by the offended group. For example, the Moroccan government had to face much hostility from Riffian Berbers when it failed to reciprocate the substantial

military help it received from them during the struggle for independence. In a somewhat more drastic vein, the newly formed central government can generate much conflict, and perhaps much violence, by corroding and redefining patterns of control over valuable resources. Such government initiatives typically unleash conflicts around constitutional issues. To the extent that the state apparatus is obviously controlled by a group of different ethnic origin from that of the group who stands to lose from the government's initiatives, these conflicts will also have an ethnic content. By the same token, such issues can also have regional overtones if the group suffering the consequences of governmental action derives its power from a control over the resources produced in a given region of the political unit. This is precisely what happened in Ghana when Nkrumah attempted to increase state revenues through a new Cocoa Ordinance which fixed cocoa prices for four years in a context of rising world prices. The main opposition to the ordinance came, of course, from the cocoa-growing Ashanti areas. Ashanti cocoa farmers organized a strong political opposition to the central government and its party, the CPP. They pushed for a federal rather than a unitary form of government for Ghana: "Under a federal system, farmers hoped to retain cocoa profits in the region and provide for themselves an economically prosperous, regional basis of power." (Harris, 1975, p. 65; see also Austin, 1964)

The bloody conflict between Java and the Outer Islands of Indonesia is another example of how Central Governments in new states can promote conflict and violence. In Indonesia, it was in the interests of Sukarno's Government to drain resources from the rich Outer Islands to poor Java. Rather than reducing their control, in this case the state was denying the Outer Islands control over the resources they themselves produced. The result was armed revolt (Geertz, 1973; Feith, 1959). Many of these political conflicts can

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evolve into full-scale wars of secession. For they all in some way involve a potential challenge to the sovereignty of the state. Thus, long-standing political, social and economic grievances of the East Pakistani led them to revolt against the Westerners who controlled the state apparatus (see Merritt, 1969), and the persecution of Ibos by the powerful northerners in Nigeria led to Biafra (see Young, 1976, pp. 460-504).

All of these conflicts are defensive in nature; they are all brought about by the aggressive expansionism of the state. Although they do not necessarily involve violence, in new states they have usually generated a great deal of collective violence. This is so because new states are still involved in the primitive accumulation and centralization of power resources. The result is that these states and their domestic opponents are locked into a vicious circle of increasing violence. Until these states accumulat the amount of power resources that will make the costs of antistate action prohibitive, their opponents will fiercely resist their extractive claims. Since state-makers are unlikely to give up their claims to sovereignty, they will tend to confront their opponents violently to ensure their control over the resources necessary for effective territorial domination. It is only if and when they achieve such domination that the level of violent interactions between the state and its opponents will significantly decline. Only at this point, if the state ever reaches it, will antistate mobilization become extremely costly and ineffective. It will then be much easier for the state to coopt or disregard its opponents' claims. But, of course, this point cannot be reached without the state and its opponents passing through the violent phase of primitive accumulation of power.

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Theoretical Specification and Empirical Verification

If our reasoning is correct, we should expect expanding state power in new states to be highly correlated with collective violence: the greater the expansion, the greater the violence. This argument is quite distinct from the dominant theories concerning collective violence in new states. Most theories have focused on socioeconomic transformations as the major determinants of collective violence in new states (Davies, 1962; Gurr, 1973). In contrast, our theory emphasizes political transformation -- especially state-making -- as a major cause of collective violence. We are not alone in our emphasis of state formation. Two other writers have done so: Samuel P. Huntington (1968) and Charles Tilly (1973, 1978). But their arguments are very different. While Tilly sees state-making as a violent process, Huntington views it as checking violence. Obviously, on this point, our view is closer to Tilly's. We are not, however, entirely in disagreement with Huntington's argument.

Tilly's argument is based on his investigations into the early phases of state-making in Western Europe, or what we have called the period of primitive accumulation of state power. His conclusion that state-making is a major cause of violence is appropriate for this early phase in the overall process of state formation. As we have already indicated, however, it is unlikely that this relationship will hold beyond the primitive level of state power accumulation. Beyond this level, Huntington's argument that state power operates to reduce the overall level of collective violence is correct. The problem, however, is that he incorrectly applies this argument to states that are still in the primitive accumulation phase of state-making.[25]

The correct formulation, then, is that the extent to which an expansion of state power will generate collective violence depends on the level of state

power prior to that expansion. Our hypothesis can therefore be stated in the following terms: other things being constant, the lower the initial level of state power, the stronger the relationship between the rate of state expansion and collective violence.[26] Generally speaking, this hypothesis implies that new states attempting to increase the power resources of the state are likely to display a higher level of collective violence than old ones because they tend to be at much lower initial levels of state power. We shall now test this hypothesis.

We shall use tax revenues to measure state power. Government tax revenues in themselves are not very good indicators of state power because they also reflect, to a large extent, the wealth of nations. To control for differences in wealth, we shall use as a measure of state power the proportion of national wealth extracted by the state in the form of taxes. This proportion will be labeled "tax ratio". Since an increase in tax ratio is an increase in the state's share of the total resources of a nation it indicates an increase in the power of the state relative to other centers of power, that is, it indicates an increase in the state's control over the power resources available in any given society. Thus, an increase in tax ratio is a manifestation of a restructuring of power relations, of a change in the balance of power of a society in favor of the state.

Given that our argument implies that new states are more violent than old ones because they are undergoing a process of primitive accumulation of power, we must first show that new states are indeed going through such a process. This can be done by showing that these states have in fact expanded their power after independence but that they are still considerably less powerful than old, consolidated, states. To show this, however, we must first define "new" and "old" states. The term "new states" is usually used in very vague

ways. It can be used to denote countries that have achieved independence after World War II or, more broadly, to denote countries which entered their _modern_ phase, in all senses of the word modern, during the twentieth century. The latter sense is more common. The author of a widely quoted paper on "new states," Clifford Geertz, uses it in this broader sense (1973, p. 234, n. 1):

> The term "new states" indeterminate to begin with, becomes even more so
> as time passes and the states age. Though my main referent is the
> countries that have gained independence since World War II, I do not
> hesitate, where it suits my purposes and seems realistic, to extend the
> term to cover states like those of the Middle East, whose formal
> independence came earlier, or even those, like Ethiopia, Iran, or
> Thailand, which in the strict sense were never colonies at all.

We might add that according to this broader definition, Latin American states can also be defined as "new states."

Now, for both of these senses of the word "new," it can be shown that in fact new states have been, on average, expanding at least as much as old ones, but are considerably less powerful than the latter. To show this we divided the 105 countries for which we have tax series into four categories according to the date at which they became autonomous, if they were colonies at all. The first category contains all nations that became independent after World War II. The second, those who became independent during the nineteenth century or the early twentieth century. The third is reserved to old non-Western kingdoms and empires, like Iran and Afghanistan, who never were colonies in the strict sense of the word. In the fourth category are those European and North American states that were autonomous before the nineteenth century. Table 1 below shows how powerful, that is, how large was the tax

ratio of each of these categories of states both at the date of their independence and in 1975.

The conclusion that "new states" at the time of independence, or in 1950, were at a much lower level of state power than "old Western states" is inescapable. In 1950 almost 70 percent of the latter were very powerful while only 2 percent of those who became independent after World War II were so. None of the old non-Western states were very powerful, and only 22 percent of the states who became independent in the nineteenth and early twentieth century were very powerful. However, the fact that, with the exception of old non-Western states, most new states were of medium power rather than of very low power shows that much of the primitive accumulation of power was undertaken by the colonizers. Table 1 also shows that although in 1975 "old Western states" were still considerably more powerful than "new" ones, the latter had nevertheless become considerably more powerful. This means that new states had undergone considerable expansions in state power between the date of their independence, or 1950, and 1975. The substantial expansion of new states after World War II can be better seen in Table 2, where it is shown that new states almost doubled their state power.[27]

We must now show that it is the combination of low initial state power and high rates of state expansion in new states that makes them more violent than old states, which also had high rates of expansion but started from a much higher initial level of state power. In other words, we must test the hypothesis that, other things being constant, the lower the initial level of state power, the stronger the relationship between the rate of state expansion and collective violence.

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Table 1. Power of Autonomous States (Percent)

Power Measured by Tax Ratio	States Independent after WWII		States Independent during 19th and Early 20th Century		Old Non-Western States		Old Western States	
	1950 or Year of Independence	1975	1950 or Year of Independence	1975	1950 or Year of Independence	1975	1950 or Year of Independence	1975
Low 0-9%	33	9	23	10	71	29	0	0
Medium 10%-19%	65	66	55	45	29	57	34	25
High 20% or more	2	25	22	45	0	14	66	75
N=	(55)	(55)	(31)	(31)	(7)	(7)	(12)	(12)

Table 2. Average Tax Ratio by Type of State
at Year of Independence, or in 1950,
and in 1975 (Percent)

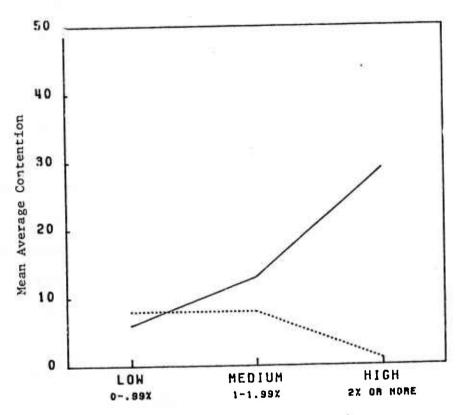| Type of State	Tax Ratio at Year of Indep. or 1950	Tax Ratio in 1975	N
Independent after WWII	11	17	55
Independent in 19th or early 20th century	14	20	31
Old Non-Western	9	16	7
Old Western	21	26	12

Source: See Table 1.

The World Handbook of Political and Social Indicators provided our measures of collective violence.[28] We used three indicators. Since we are dealing with collective violence we used the only two event variables that involved violent interaction between the state and a sizable group of people: riots and armed attacks. These two variables were added and called "violent contention." The third variable is the number of deaths in conjunction with collective violence. The period covered runs from 1950 to 1965; that is, the variables will be the average number of deaths and collective contention between 1950 and 1965. The two last years (1966-1967) of the World Handbook series were excluded because the series of economic indicators necessary for our analysis stop in 1965. As for the rate of expansion of state power, the indicator used is the annual growth rate of tax ratio between 1950 and 1965.

Unfortunately, we have complete series for only 31 nations. We could have expanded the number of cases by decreasing the number of years involved. But the 16-year period we chose is already a short one for our purposes. We do not know what is the time-lag between state expansion and a violent reaction to it. We can only say that over a relatively long period of time state expansion will generate collective violence. Thus until further evidence is collected we shall have to content ourselves with a rather limited set of countries.

The relationship between the rate of state expansion and our two indicators of collective violence at different levels of initial state power -- state power for autonomous nations in 1950 -- is shown in the graphs below.[29]

Although the limited number of countries raises much doubt as to the conclusiveness of our evidence, the graphs above, together with Tables 1 and 2, clearly indicate that there is good reason to believe that it is the

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Graph 1.   Mean Average Collective Contention
by Rate of State Expansion
(1950-1965)

Annual Rate of State Expansion

Source: For data on contention, Taylor and Hudson (1976).   For

tax ratios see Table 1.

Key: ———— Weak States (Tax Ratio: 0%-15%)

.... Strong States (Tax Ratio: 16% or more)

Graph 2.   Mean Average Deaths
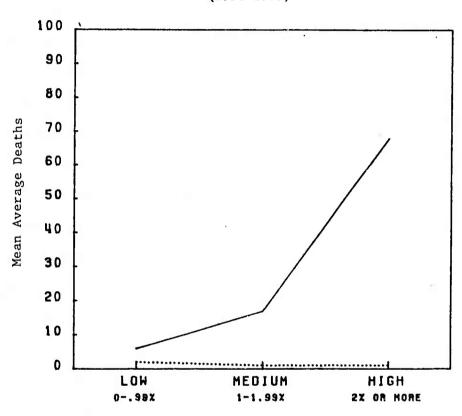by Rate of State Expansion
(1950-1965)

Annual Rate of State Expansion

Source: For data on deaths, Taylor and Hudson (1976).   For tax

ratios see Table 1.

Key: ————   Weak States (Tax Ratio: 0%-15%)

        ·······   Strong States (Tax Ratio: 16% or more)

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process of primitive accumulation of power that generates much of the violence in new states. In other words it is the progression toward greater order itself that produces much of the relatively greater violence we find in new states. It could still be argued, of course, that our measure of state expansion is far from pure. After all, economic development involves structural changes, such as major improvements in communication systems, which greatly facilitate the extractive tasks of the state. Thus tax ratios might reflect, to a large extent, the level of economic development, and expansions in tax ratios might therefore reflect economic change. This poses a serious problem for our interpretation. For, to the extent that the tax ratio is an alternative measure of economic development, we would merely be repeating the argument that violence is a function of economic modernization. To verify whether this was the case, we reanalyzed our data on expansion and violence for weak states, this time controlling for the annual rate of growth in GNP between 1950 and 1965. The results are presented in Table 3.

For the limited set of countries analyzed, our results indicate that tax ratios are not the same as the usual indicator of economic modernization. Furthermore, the evidence strongly suggests that the rate of economic development is related to both the rate of state expansion and collective violence in a way that runs contrary to the way postulated by the predominant view on such matters.

In the first place, state expansion seems to produce much more violence than economic growth. When we move from low to high state expansion the "deaths" figure increases from 5 to 106 and from 16 to 46, while the corresponding movement for rates of economic growth is from 5 to 16 and from

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Table 3. Collective Violence by State Expansion
and Economic Growth for Weak States
(1950-1965)

Rate of Economic Growth	Rate of State Expansion	
	Low (0-1.99)	High (2 or more)
Low (0-1.99)	5, 7	106, 47
High (2 or more)	16, 12	46, 18
N=	(12)	(8)

Source: For data on violence, Taylor and Hudson (1976). For tax ratio data see Table 1.

Note: Figures represent, respectively, Mean Average Deaths and Mean Average Collective Contentions.

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106 to 46; the figures for contention show an equivalent pattern. Thus, not only state expansion produces more violence than economic growth, but the latter also seems to act counter to state expansion under conditions of high state expansion. Rather than state expansion being an antidote for the violence produced by economic modernization, our rather limited evidence shows that it is economic modernization which is the antidote to the violence produced by state expansion. This is much in line with common sense, which has it that the government, or any group, for that matter, will have less trouble cutting a greater slice of a growing pie.

Conclusion

The central argument of this article has been developed as a criticism of the standard interpretation of collective violence in new states. We have shown that instead of indicating political decay, violence in these states is an integral part of the process of the accumulation of power by the national state apparatus. To the degree that this power accumulation is necessary for the imposition or maintenance of order, collective violence is also indicative of movement towards political order on a new scale. Admittedly, our evidence is far from definitive. Nevertheless it at least consistently contradicts the interpretation of violence as political decay and supports our interpretation of violence as a usual feature of the process of primitive accumulation of power.

Since we took existing interpretations of violence as our starting point, we have focused our attention exclusively on the problem of political order in relation to violence. This in no way implies that we share the prevailing commitment to political order as the primary value of political life. To be sure, liberty and justice are at least as important as the achievement of political order. In the absence of effective liberty and justice, order will

no doubt always be precarious and, perhaps, undesirable. For, as Saint Augustine remarked: "Without justice, what is government but a great robbery?".[30]

NOTES

[20]For an exhaustive history of the different views on political development see Huntington and Dominquez (1975). The major work indicating the reorientation of the field is Huntington's (1968, 1971).

[21]For a recent overview of the European experience of state-making see Tilly (1975), especially pp. 3-83, 601-638. Other synthetic works are Bendix (1964, 1968), Organski (1965), Anderson (1974) and Poggi (1978). Also see Carsten (1954), Rosenberg (1958) and Hintze (1975). The French history of state-making has been especially well analyzed. See Goubert (1970), Lublinskaya (1968), Salmon (1975), Coveney (1977) and Mousnier (1979).

[22]Good overviews of the connections between ethnic, religious, linguistic, and other primordial conflicts, and between those and state-making are Wolf (1969), Geertz (1973), Part 1V, and Lewis (1974), Parts 2 and 3. For further references see the next section.

[23]For the dispute about the relative importance of aristocratic leadership in peasant rebellions, see Mousnier (1958) and Porshnev (1963).

[24]For studies of peasant resistance against the state in a variety of times and places see Hobsbawm (1965), Moore (1966), Wolf (1969), Mousnier (1972), Lewis (1974), Scott (1976), Blum (1978), Rude (1980).

[25]It should be noted that Huntington is not unaware of the fact that the process of institutionalization can be an extremely violent one. In his discussion of political change in traditional societies he compares China and Japan, Ruanda and Urundi, the Buganda and the Fulani-Hausa, precisely in terms of the violence of their process of political change. Yet in his theoretical formulations, he only speaks of institutionalization as checking collective violence.

[26]This does not mean, of course, that expanding states, or consolidated ones, do not break down, although this is relatively rare and generally related to international conflict. See Skocpol (1979).

[27]A comparison between "new" and "old Western" states should be carried out with extreme caution. Additional extraction is much easier from a lower base. Consequently the 5 percent increase for "old Western" states is probably much more difficult than the 6 percent increase of "new" states between 1950 and 1975 (see Table 2).

[28]The data were made available by the Inter-University Consortium for Political Research. The data were originally collected by Charles L. Taylor and Michael C. Hudson (1976). Neither the original collectors of the data nor the Consortium bear any responsibility for the analyses or interpretations presented here.

[29] We had to exclude from our analysis two countries, for which we had complete series, the Philippines and Colombia, because they had an extremely unusual ratio of deaths per contention. However, even if those countries had been included, our results would remain the same where contention is concerned, although they would be considerably weakened in the case of deaths.

[30] Quoted in Lane (1958).

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APPENDIX 5: CODEBOOK FOR AGGREGATE ATTITUDES DATA FILE

NATIONAL ESTIMATES PROJECT

INTRODUCTION

The aggregate data file consists of a number of key behavioral indicators reflecting aggregate levels of support, involvement and participation of mass publics in the political system of democratic nations. This data set contains summary scales contracted from Scholar Survey questions of comparable wording collected by diverse organizations for 1950-1978.

Constructing the Scales

What follows is a brief description of the construction of scales in the aggregate data file. Each scale is described in terms of the specific variables used and in terms of the SPSS program that is employed in its construction. This data set has particular properties not usually found in other surveys or aggregate statistics. First, the construction of indexes from survey data are different than the methods used for aggregate data. Often, there is great reliance on just a few variables to measure a complex phenomena. Indexes are constructed as if the observed variables are caused by a general trait in the individuals sampled, even though a direct measure of the desired latent trait is not available. Thus, we assume that the set of observed measures represent the desired underlying latent concepts. Second, often components of an index represent very similar phenomena, and consequently at the individual level are very closely related. Since we are dealing with a comparative, cross-national design, the indicators must reflect the most basic aspect of political behavior capable of influencing or being influenced by government activity and less dependent upon the cultural nuances of the individual countries. Each has been selected in part because of the

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amount of information already known from studies of electional behavior and political participation. Moreover, the absence of any single measure from the index of a given country will not, we assume, dramatically alter the comparability of an indicator either over time or across countries.

The indicators are constructed for each individual within each time point and for each country. The procedure is first to construct the micro level indicators and then to aggregate the measures to the national level. The resulting overall variation of political commitment allow comparisons across countries.

In the following codebook we provide detailed definitions of each aggregate index. In addition, we have included the SPSS program used to construct each scale as a reference for possible replication. The commands can be executed on any country file provided the sample has been weighted to a standard of 2000 respondants. For details, see National Estimates Support Data.

VARIABLE 1.

VARIABLE 2.

Year: Data is spaced when available for the following years.

1950-1978.

VARIABLE 3.

Month of Year: Indicates the month when original survey was carried out as follows:

1. January

2. February

COUNTRY	CODE
130	Australia
133	Austria
145	Belgium
190	Canada
265	Denmark
298	Finland
311	France
332	West Germany
401	Ireland
410	Italy
419	Japan
521	Netherlands
533	New Zealand
551	Norway
704	Sweden*
707	Switzerland
752	United Kingdom
755	United States, Israel

3. March

4. April

5. May

6. June

7. July

8. August

9. September

10. October

11. November

12. December

VARIABLE 4.

Involvement I

The measure of psychological involvement combines the adjusted measures

of interest in politics (V67), interest in recent or current election campaign

(V68), amount of discussion of politics (V69), attempts to influence others politically (V70) and attention to mass media for political information (V75). The psychological involvement scale is built for each individual for each time point, within each country as follows:

PSYCHOLOGICAL INVOLVEMENT = (INTEREST IN POLITICS /3) +

(INTEREST IN ELECTION /3) + (DISCUSSION OF POLITICS /3)

+ (INFLUENCE OTHERS /2) + (ATTENDING TO MEDIA /2)

Each of the variables have been divided by its maximum score producing for each a range form zero to one. The range of the psychological involvement scale is constrained by achieved levels as follows:

0: No psychological involvement

1: Maximum psychological involvement

-0: Missing data

For coding routine, see Var. 5., Involvement II.

*All variables listed in the definition are from the National Estimated Support File and are given only as a reference. (DARPA Report, 1980).

VARIABLE 5.

Involvement II.

This variable is the same as Involvement I, but it has the following range:

1: No psychological involvement

10: Maximum psychological involvement.

Involvement variables are obtained from the following SPSS code:

(SETUP INVOLVEMENT I AND II)

(Reading Input Variables for Validity test for Involvement Index).

(See Appendix A).

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    FILENAME                        SETUP FRANCE FILE

    ALLOCATE                       TRANSPACE=18000

    PAGESIZE                          NOEJECT

    VARIABLE LIST                    V1 TO V80

    INPUT MEDIUM                       TAPE

    INPUT FORMAT      FIXED(3F2.0,F4.0,F6.0,2F6.5,4F3.0,F7.0,68F3.0)

    N OF CASES                        UNKNOWN

    COMMENT            SPECIFIC COUNTRY CODING CORRECTIONS

    COMMENT                    FRANCE CORRECTIONS

    IF                        (V4 EQ 7372) V76=999

    COMMENT          END OF SPECIFIC COUNTRY CORRECTIONS

    COMPUTE                          AGE=V11

    COMPUTE                          EDUC=V13

    VALUE LABELS          EDUC (1)ELEM (2)TECH (3)SECND
                     (4)COLL/ AGE (1)81-24 (2)25-29 (3)30-39
                        (4)40-49 (5)50-59 (6)OVER 60

    MISSING VALUES       V10 EDUC (8 9 999)/ AGE (9 999)

    COMPUTE               TIME= (V3 * 100) + V2

    IF                       (V1 EQ 13) TIME=V4
----------------------------------------------------------------
```

(counting for Validity Test).

(Reading inp[ut variables for scale construction).

(Construction of Variable 4, Involvement I).

MISSING VALUES INVOLVE1 (-99)

(END INVOLVEMENT I)

(START INVOLVEMENT II).

```
----------------------------------------------------------------------
-------------------------------------------------------------------

            COMPUTE                                    X68=V68

            COMPUTE                                    X69=V69

            COMPUTE                                    X70=V70

            COMPUTE                                    X71=V71

            COMPUTE                                    X76=V76
----------------------------------------------------------------------


==================================================================
-------------------------------------------------------------------

-------------------------------------------------------------------

      RECODE              X68 TO X71 (1 THRU 3=1)(0 8 9 999=0)

      COMPUTE             XNUM1=X68 + X69 + X70 +X71 +X76

      COMPUTE                         NUM1=-9

      IF                    (V4 EQ 7620 OR 7101)NUM1=1

      IF                       (V4 EQ 7417 OR 7225
                          OR 7099 OR 7100 OR 7103
                          OR 7105 OR 7098) NUM1=2

      IF                  (V4 EQ 7330 OR 7416 OR 7418 OR
                             7372 OR 0605 OR 7232 OR
                         7233 OR 7234 OR 7004 OR 741 OR
                         742 OR 7213 OR 7214 OR 7215 OR
                                 7104) NUM1=4

      IF                (V4 EQ 7261 OR 7102 OR 7256 OR 7294) NUM1=5

      IF              (V1 EQ 6 AND (V4 NE 7213 OR 7214 OR 7215)) NUM1=4

      IF                        (V1 EQ 13) NUM1=3
----------------------------------------------------------------------
```

VARIABLE 6.

Partisanship -- The Strength of Party Identification

```
============================================================
------------------------------------------------------------
------------------------------------------------------------

        COMPUTE                          A68=V68

        COMPUTE                          A69=V69

        COMPUTE                          A70=V70

        COMPUTE                          A71=V71

        COMPUTE                          A76=V76
------------------------------------------------------------


============================================================
------------------------------------------------------------
------------------------------------------------------------

    RECODE                    A68 TO A70 (1=0)
                          (2=.5) (3=1)(8 9 999=0)/
                      A71 A76 (2=0)(1=1)(8 9 999=0)

    COMPUTE           ISUM11=A68 + A69 + A70 +A71 +A76

    COMPUTE             INVOLVE1=ISUM11/XNUM1

    IF               (NUM1 EQ 1 OR -9) INVOLVE1=-99

    COUNT        MD1= V68 V69 V70 V71 V76 (0 8 9)

    IF           (NUM1 EQ 5 AND MD1 GE 3) INVOLVE1=-99

    IF           (NUM1 EQ 4 AND MD1 GE 2) INVOLVE1=-99

    IF           (NUM1 EQ 3 AND MD1 GE 2) INVOLVE1=-99

    IF           (NUM1 EQ 2 AND MD1 EQ 1) INVOLVE1=-99
------------------------------------------------------------
```

This measure combines the <u>presence</u> of an expressed party loyalty. It is measured by strength of party identification that combines party identification (V41) and party identification-leaners (V42) with the degree of attachment to party (V43). More precisely, a standardized measure of partisanship is obtained as follows:

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```
_____
--------------------------------------------------------
   --------------------------------------------------------

        COMPUTE                          B68=V68

        COMPUTE                          B69=V69

        COMPUTE                          B70=V70

        COMPUTE                          B71=V71

        COMPUTE                          B76=V76

        RECODE                    B68 TO B70 (1=0)(=2=5)
                                     (3=10)(8 9 999=0)/
                                  B71 B76 (1=10)(8 9 999=0)

        COMPUTE           ISUM12=B68 + B69 + B70 +B71 +B76

        COMPUTE              INVOLVE2=ISUM12/XNUM1

        IF               (NUM1 EQ 1 OR -9) INVOLVE2=-99

        COUNT            MD1= V68 V69 V70 V71 V76 (0 8 9)

        IF           (NUM1 EQ 5 AND MD1 GE 3) INVOLVE2=-99

        IF           (NUM1 EQ 4 AND MD1 GE 2) INVOLVE2=-99

        IF           (NUM1 EQ 3 AND MD1 GE 2) INVOLVE2=-99

        IF           (NUM1 EQ 2 AND MD1 EQ 1) INVOLVE2=-99

        MISSING VALUES              INVOLVE2 (-99)

        VAR LAVBELS       INVOLVE 1 BASELINE INVOLVEMENT INDEX:0-1/
                          INVOLVE2 INTERACTIVE INVOLVEMENT INDEX:1-10/
--------------------------------------------------------------------
```

$$PARTISANSHIP = (STRENGTH OF PARTY IDENTIFICATION) + (DEGREE OF ATTACHMENT TO PARTY)$$

The lowest code for Partisanship includes individuals who consider themselves independent of party or fail to express a clear and persistant intention, the opposite is true at the high extreme.

The partisanship indicator will have the following range:

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0: No party attachment.

1: Max. Party attachment.

-0: Missing data.

The partisanship indicator is obtained from the following SPSS code:

```
COMPUTE                          X41=V41

COMPUTE                          X42=V42

COMPUTE                          X43=V43

RECODE                      V42 (98=0)(99=200)

COMPUTE                      PID=(10*V1) + V42

RECODE               PID (10 18 20 27 30 39 40
                  47 50 57 60 70 78 80 89 90 99
           100 109 110 119 120 129 140 170 178=1)
                     (11THRU 17 21 THRU 26 31
             THRU 38 41 THRU 46 51 56 61 62 67
              71 THRU 77 81 THRU 88 91 THRU
              98 101 THRU 108 111 THRU 118
                       121 THRU 128
           141 THRU 145 171 THRU 177=2) (ELSE=9)


COMPUTE                  PARTISAN=(10*PID) + V44

RECODE               PARTISAN (11 THRU 19=0)(21 28
                  29=.33)(22=.66)(23=1.0)
                        (ELSE=-99)


COMPUTE                      PID2=PID

RECODE                PID2 (1=0)(2=.6)(ELSE=-99)

MISSING VALUES               PID2 (-99)

IF                    (V4 EQ 7201 OR 7330 OR 7416 OR
                      7278 OR 7256) PARTISAN=PID2
```

MISSING VALUES PARTISAN (-99)

VARIABLE 7

Political Commitment

The measurement of political commitment integrates the concepts of partisanship and involvement previously defined. Political commitment is an interactive variable as follows:

POLITICAL COMMITMENT = (PARTISANSHIP X INVOLVEMENT I)

Two components of political commitment measure the proximity of the individual to the political process by discerning the closeness of the individual to political parties and then concurrently determining the general degree of a citizen's political interest. Specifically, partisanship measures the extent to which the individual either identifies with a political party or the assuredness of his or her vote intention. The individual's degree of psychological involvement in the political process refers to the degree to which people pay attention to and are interested in politics, the degree to which election outcomes matter and the extent to which the political process and campaigns are followed. The infraction between these two captures the commitment of individuals to the political process.

VARIABLE 8.

Political Participation I

The participation scale is a measure of the active, behavioral involvement in elections. It is an additative scale composed of four variables: the simple act of voting (V72), turnout recalled from the past (V73), attendance of political meetings (V74) and other forms of participation (V/5). Each variable has been adjusted by dividing by the maximum scores.

PARTICIPATION = (VOTE /2) + (ALWAYS VOTE /2) +
(ATTEND MEETINGS /2) + (OTHER ACTIVITY)

The political participation I scale will have the following range:

0: No political participation

1: Maximum political participation

-0: Missing data

The political participation indicator coding routine follows VARIABLE 9: Political Participation II.

VARIABLE 9

Political Participation II

This measure is similar to variable 8: Political Participation, with a range as follows:

1: No political Participation

10: Maximum Political participation

-0: Missing data

The political participation indicators are obtained from the following SPSS code:

Code for Political Participation I and II:

MISSING VALUES PARTIC1 (-99)

(Code for Political Participation II)

An identical measure of variable 8, only it is coded from 1 to 10 for interaction analysis. construction of variable 9 Participation II.

MISSING VALUES PARTIC2 (-99)

```
COMPUTE                          A72=V72

COMPUTE                          A73=V73

COMPUTE                          A74=V74

COMPUTE                          A75=V75

RECODE                 A72 TO A75  (2=0)(1=1)(8 9 999=0)

IF                          (V4 EQ 1960) A72=0

IF                          (V4 EQ 1976) A72=0

COMPUTE               ISUM21=A72+A73+A74+A75

COMPUTE               PARTIC1=ISUM21/XNUM2

IF                     (NUM2 EQ 1 OR -9) PARTIC1=-99

COUNT                 MD2= V72 V73 V74 V75 (0 8 9)

IF                  (NUM2 EQ 4 AND MD2 GE 3) PARTIC1=-99

IF                  (NUM2 EQ 3 AND MD2 GE 2) PARTIC1=-99
```

```
========================================================================
------------------------------------------------------------------------

------------------------------------------------------------------------

           COMPUTE                            B72=V72

           COMPUTE                            B73=V73

           COMPUTE                            B74=V74

           COMPUTE                            B75=V75

           RECODE            B72 TO B75  (2=1)(1=10)(8 9 999=0)

           IF                        (V4 EQ 1960) B72=0

           IF                        (V4 EQ 1976) B72=0

           COMPUTE               ISUM22=A72+A73+A74+A75

           COMPUTE                  PARTIC2=ISUM22/NUM2

           IF                  (NUM2 EQ 1 OR -9) (PARTIC2=-99

           COUNT               MD2= V72 V73 V74 V75 (0 8 9)

           IF            (NUM2 EQ 4 AND MD2 GE 3) PARTIC2=-99

           IF            (NUM2 EQ 3 AND MD2 GE 2) PARTIC2=-99
------------------------------------------------------------------------

========================================================================
------------------------------------------------------------------------

           VAR LABELS               PARTICIPATION INDEX:
                          0-1/   PARTIC1 PARTICIPATION INDEX: 1-10/

------------------------------------------------------------------------
```

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COUNTRY: FRANCE   NATIONAL ESTIMATES PROJECT

June, 1980

INDEX: INVOLVE I   VALIDITY TEST

Levels of Involvement Available Given No. of Composing Indexes

YEAR OF STUDY	TOTAL (X)	4 VBS (N)	3 VBS (N)	2 VBS (N)	1 VBS (N)
Nov. 1958	.52 (1471)	.41 (365)	.33 (446)	.52 (12)	.71 (648)
June 1967	.20 (2010)			.20 (1996)	.11 (14)
July 1970					
June 1973	.50 (2212)		.51 (2121)	.24 (91)	
May 1975	.52 (1151)		.53 (1103)	.37 (48)	
Oct. 1975	.46 (1223)			.46 (1223)	
May 1976	.53 (1227)		.54 (1182)	.37 (45)	
Oct. 1976	.49 (1355)	.49 (1313)	.45 (34)	.60 (5)	.50 (3)

INDEX: INVOLVE I   VALIDITY TEST

X for .....

YEAR OF STUDY	TOTAL(X)	4 VBS (N)	3 VBS (N)	2 VBS(N)	1 VBS (N)
1953	.58 (3242)		.61 (2750)	.42 (492)	
1959	.61 (955)	.62 (876)	.51 (68)	.67 (10)	
June 1961	.49 (1637)			.49 (1637)	
Sept. 1961	.53 (1554)			.53 (1554)	
Nov. 1961					
Sept. 1965	.68 (1383)			.68 (1383)	
Oct. 1965	.57 (1264)			.57 (1264)	
Aug. 1969	.47 (1944)	.47 (1898)	.49 (45)		.50 (1)
Oct. 1969	.60 (1092)		.61 (1088)		.25 (4)
June 1970					
Sept. 1972	.65 (1596)	.68 (1144)	.58 (75)	.58 (377)	
June 1973	.63 (1919)		.64 (1816)	.40 (103)	
May 1975	.51 (1024)		.53 (918)	.38 (106)	
Oct. 1975	.53 (932)			.54 (932)	
May 1976	.61 ((992)		.60 (909)	.70 (83)	
June 1976	.53 (2075)	.48 (1495)	.34 (21)	.50 (6)	.65 (553)
Oct. 1976	.56 (1007)	.56 (922)	.49 (70)	.66 (11)	.50 (4)

June, 1980

INDEX: INVOLVE I   VALIDITY TEST

X FOR .....

YEAR OF STUDY	TOTAL(X)	4VBS(N)	3 VBS(N)	2 VBS(N)	1 VBS (N)
1953					
June 1959	.43 ((995)	.42 (914)	.48 (73)	.66 (8)	
June 1968	.25 (2498)		.26 2392)	.10 (106)	
July 1970					
June 1972	.26 (1841)	.28 (1714)	.11 (121)	.06 (4)	.5 (2)
June 1973	.51 (1891)		.52 (1800)	.32 (91)	
May 1975	.47 (1032)		.48 (978)	.23 (54)	
Oct. 1975	.52 (1077)			.52 (1077)	
May 1976	.52 (913)		.52 (965)	.47 (48)	
Oct. 1976	.47 91052)	.48 (990)	.36 (48)	.31 (11)	

June, 1980

INDEX: INVOLVE I   VALIDITY TEST

X for.....

YEAR OF STUDY	TOTAL (X)	4 VBS (N)	3VBS (N)	2VBS (N)	1 VBS (N)
Oct. 1952	.54 (1578)		.54 (1578)		
1956	.49 (1751)		.49 (1751)		
1958					
1959					
1960	.54 (1109)	.54 (1083)	.44 (26)		
1962	.36 (1284)		.36 (1284)		
1964	.56 (1680)	.56 (1664)	.53 (16)		
1966	.43 (1284)	.44 (1222)	.29 (62)		
1968	.56 (1442)	.56 (1426)	.49 (16)		
1970	.45 (1671)		.45 (1671)		
1972	.50 (2187)	.50 1104)	.50 1083		
1974	.48 (1504)		.48 (1504)		
1976	.58 (1905)	.58 (1879)	.34 (30)		

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YEAR OF STUDY	TOTAL (X)	4 VBS (N)	3 VBS (N)	2 VBS (N)	1 VBS (N)
Aug. 1956	.51 (1132)		.51 (1119)	.44 (13)	
Aug. 1960	.61 (1466)		.61 (1465)	.50 (1)	
Jan. 1961	.62 (737)		.62 (737)		
Aug. 1964	.37 (1431)		.37 (1429)	.12 (2)	
Jan. 1965	.38 (1418)		.38 (1411)		
Aug. 1968	.73 (1440)	.96(XNUM=6) (133)	.71 (1298)	.53 (9)	
Jan. 1969	.73 (1426)	.97(XNUM=6) (162)	.71 (1260)	.62 (4)	
Aug. 1970					
Jan. 1971					
Aug. 1973	.58 (1177)		.58 (1174)	.25 (3)	
Jan. 1974	.60 (1245)		.60 (1238)	.46 (7)	
Aug. 1976	.46 (2650)		.46 (2624)	.39 (26)	

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INDEX: INVOLVE I   VALIDITY TEST

X for .....

YEAR OF STUDY	TOTAL (X)	4 VBS (N)	3 VBS (N)	2 VBS (N)	1 VBS (N)
June 1969	.59	.59 (944)	.54 (17)	.25 (2)	
June 1963	.35		.63 (1409)	.48 (350)	
June 1964	.60		.63 (1409)	.48 (1350)	
June 1966	.58		.61 (1464)	.48 (405)	
June 1969	.72	.8(XNO=6) (N=313)	110(XNO=5) (4)	.67 (796)	
1970					
June 1973	.52		/53 (1807)	.37 (109)	
Feb. 1974	.58		.59 (2344)	.29 (95)	
Oct. 1974	.87			185 (800)	.79 (627)
May 1975	.46		.47 (929)	.40 (92)	
Oct. 1975	.42			.43 (1110)	
May 1976	.57		.57 (1015)	.56 (11)	
Oct. 1976	.54	.55 (1036)	.45 (14)		.50 (1)

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COUNTRY: UNITED KINGDOM   NATIONAL ESTIMATES PROJECT

June, 1980

INDEX: PARTIC I   VALIDITY TEST

Levels of Participation Given No. of Composing Indexes Available

YEAR OF STUDY	TOTAL (X)	4 VBS (N)	3 VBS (N)	2 VBS (N)	1 VBS (N)
June 1969	.13 (959)				.13(-1) (959)
June 1963	.17 (219)			.17 (219)	
June 1964	.46 (1755)			.46 (1755)	
June 1966	184 (1869)				.84 (1869)
June 1969	.67 (1103)				.67 (1103)
1970					
June 1973					
Feb. 1974	.88 (2459)				.88 (2459)
Oct. 1974					
May 1975					
9Oct. 1975					
May 1976					
Oct. 1976					

June, 1980

INDEX: PARTIC I   VALIDITY TEST

X for.....

YEAR OF STUDY	TOTAL (X)	4 VBS (N)	3 VBS (N)	2 VBS (N)	1 VBS (N)
Aug. 1956	.67 (1124)(?)		.69 (1009)	.48 (106)	
Aug. 1960	.47 (1323)			.50 (1215)	.21 (108)
Jan. 1961	.61(736)		.65 (615)	.41 (121)	
Aug. 1964	(1124)		.33 (6)	.48 (1064)	
Jan. 1965	.96 (12)			.96 (12)	
Aug. 1968	.94 (1472)			.96 (1250)	.86 (222)
Jan. 1969	.94 (1404)				.95 (1404)
Aug. 1970					
Jan. 1971					
Aug. 1973	.95 (1170)			.97 (1079)	.85 (91)
Jan. 1974	.95 (1243)				.95 (1243)
Aug. 1976	.95 (2398)				.95 (2398)

COUNTRY: UNITED STATES   NATIONAL ESTIMATES PROJECT

June, 1980

INDEX: PARTIC I   VALIDITY TEST

X for.....

YEAR OF STUDY	TOTAL (X)	4 VBS (N)	3 VBS (N)	2 VBS (N)	1 VBS (N)
Oct. 1952	.36 (1705)	.38 (1496)	.24 (209)		
1956	.38 (1762)	.40 (1675)	.23 (87)		
1958	.66 (1417)			.66 (1417)	
1959					
1960	.44 (1108)	.44 (1073	.41 (35)		
1962	.36 (1287)	.37 (1264)	.10 (23)		
1964	.40 (1678)	.42 (1532)	.25 (146)		
1966	.47 (1291)		.48 (1242)	.19 (49)	
1968	.40 (1442)	.41 (1342)	.28 (100)		
1970	.36 (1658)	.35 (1414)	.48 (241)	.16 (3)	
1972	.39 (2191)	.41 (1912)	.27 (279)		
1974	.36 (1575)	.37 (1535)	.15 (40)		
1976	.39 (1905)	.40 (1760)	.24 (145)		

June, 1980

INDEX: PARTIC I VALIDITY TEST

X for.....

YEAR OF STUDY	TOTAL (X)	4 VBS (N)?	3 VBS (N)	2 VBS (N)	1 VBS (N)
1953					
June 1959	.33 (947)			.47 (578)	.13 (369)
June 1968	.36 (2498)		.37 (2488)	.30 (10)	
July 1970					
June 1972	.56 1839)			.57 (1827)	.42 (12)
June 1973					
May 1975					
Oct. 1975					
May 1976					
Oct. 1976					

COUNTRY: WEST GERMANY   NATIONAL ESTIMATES PROJECT

June, 1980

INDEX: PARTIC 1   VALIDITY TEST

X for.....

YEAR OF STUDY	TOTAL (X)	4 VBS (N)	3 VBS (N)	2 VBS (N)	1 VBS (N)
1953	.37 (3239)		.43 (2791)	.95(-1) (448)	
1959	.44 (943)			.50 (729)	.23 (214)
July 1961	.46 (1665)			.55 (1297)	.15 (368)
Sept. 1961	.96 (1437)				.97 (1437)
Nov. 1961	.82 (1858)				.8
Nov. 1961	.82 (1858)				.82 (1858)
Sept. 1965	.96 (1302)				.96 (1302)
Oct. 1965	.93 (1141)				.94 (1141)
Aug. 1969	.49 (1943)			.50 (1887)	.20 (56)
Oct. 1969	.94 (758)				.95 (758)
June 1970					
Sept. 1972	.37 (1221)		.37 (1202)	.58 (19)	
JUne 1973					
May 1975					
Oct. 1975					
May 1976					
June 1976	.37 (1505)		.43 (1147)	.18 (358)	
Oct. 1976					

COUNTRY: FRANCE   NATIONAL ESTIMATES PROJECT

June, 1980

INDEX: PARRIC I   VALIDITY TEST

X for.....

YEAR OF STUDY	TOTAL (X)	4 VBS (N)	3 VBS (N)	2 VBS (N)	1 VBS (N)
Nov. 1958	.51 (826)	.51 (826)			
June 1967	(2019)	.92 (1975)			.95 (44)
July 1970					
June 1973					
May 1975					
Oct. 1975					
May 1976					
Oct. 1976					

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APPENDIX 6: East European Countries

This data set has been prepared by Dr. Kryzstof Badach of the Project on National Income on East Central Europe, consultant for the National Estimates Project. It includes data for: Bulgaria, Czechoslovakia, German Democratic Republic, Hungary, Poland, Romania, Yugoslavia and USSR for years 1955 to 1980 for the following variables.

-Population by January 1 in thousand (for every country except USSR)
-GNP Total. Gross National Product
-GNP Total in 1979 U.S. dollars
-GNP in Agriculture
-GNP in Mining
-Exports total in current devisa currency
-Exports Agriculture in current devisa currency
-Exports Mining in current devisa currency
-Total Budget Revenue (except USSR)
-Revenues from National Economy
-Turnover Tax
-Transfer of Profits
-Social Security Contributions
-Total Taxes from Population or Total taxes and fees
-Income tax on wages (except for Bulgaria, Hungary, Rumania, USSR)
-Total Budget Expenditures on National Economy
-Budget Expenditures on Investment
-Expenditures on Education Total
-Expenditures on Universities and Colleges
-Expenditures on Health Care Total
-Expenditures on Hospitals and Clinics (except for GDR and USSR)
-Defense Budget Expenditures
-Total Defense Expenditures (estimate)
-Social Seucrity Benefit Total
-Social Security Pensions
-Social Seucrity Sick Pay
-Social Security Family Allowance

If not otherwise stated, all variables are in current domestic currency.

The first step of gathering and building each time series with as much material consistency as possible has been completed. This process has been lengthy and laborous because of well known difficulties:

-Availability of data
-Differences in accounting procedures among countries
-Changes in reporting systems and accounting procedures within country during period covered

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-And most important of all, centralized economies don't report their fiscal statistics according to the standards recognized by the international community. The data was rearranged following the United Nations System of National Accounts for Central Government in the breakdown shown in the variable list.

The sources more widely used will be presented in two groups.

General Sources:

United Nations Statistical Yearbook (various years)

> Government Finance Statistic Yearbook. International Monetary Fund (various years)
>
> World Tables, World Bank 1976, 1980
>
> National Accounts of OECD countries. OECD, Paris (various years)
>
> National Accounts Statistics of OECD countries (various years)
>
> Handbook of Economic Statistics National Foreign ASsessment Center (various years)
>
> U.S. Congress. Joint Economic Committee (several papers)
>
> Alton et al. Occasional papers of the Research Project on National Income on East Central Europe

National Sources

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> Statisticheski Godishnik na URB Derzharen Vestnik. Rabotnichesko Delo.

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> 1950-1974, Weiner Institut fur Internationale Wirtschaftsvergleiche
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